

00188US1.ST25.txt
SEQUENCE LISTING

<110> Benjamin, Christopher W.
Roberts, Steven L.
Karnovsky, Alla M.
Ruble, Cara L.

<120> Human Ion Channels

<130> 00188US1

<150> 60/215,815

<151> 2000-07-05

<150> 60/216,481

<151> 2000-07-06

<150> 60/216,479

<151> 2000-07-06

<150> 60/216,482

<151> 2000-07-06

<150> 60/217,096

<151> 2000-07-10

<160> 125

<170> PatentIn version 3.0

<210> 1

<211> 443

<212> DNA

<213> Homo sapiens

<400> 1

ttcctgccta gtgttctggc tgctctcgag gcctcctgct tgactgttag cctggggctt 60

accttctttc ctctcctgct ttccgaatcg catgtttccc tctttcttga tttattcget 120

tatttttggtg gaacacatct ccagtatctt cctaggaaaa ggaacatggt agatcaattt 180

ttcaaattct tgcattgtctg atttattctc tcttcatact tgattggtag ttttgatacc 240

aaattctagg ttgaaaataa ttttcacttg gaatttttaa ggcatttatt cctccattgt 300

cttctagggt ccagcattgc tattgaggac tctgatgaca ttttcttttt ctttttttct 360

ttaggctctg gaaactttta ggatcttctc cttaataaca gtgtcctgaa tttcacactg 420

atgtgcctta ggacgggtct ttt 443

<210> 2

<211> 509

<212> DNA

<213> Homo sapiens

<400> 2

ctttgtagct gtcattctgca gtgtgggaca gctgcacaag ggcccagcat gtctgtgtgt 60

ttaccacagg gactgccgca tggctcatgc tgagcagaag ctgatggacg accttctgaa 120

caaaacccgt tacaacaacc tgatctgccc agccaccagc tcctcacagc tcatctccat 180

cgagacagag ctctccctgg cgcagtgcac cagtgtggta agtgcagagg gcacctgtgg 240

ctcaggctca gatgaagagg cagctcatgc ccaagcctca agcaatcaat gtccagagga 300
 atgaaatgac cagagttgac ttagactcac caatacgtgg cggggagggt ggaggaaggt 360
 ccctgagggtt tatagggtgc caatatTTaa tgagggtcatg gttttcttaa caaagaagaa 420
 atgaggggtgg gagcggggtc accactgggt aggcagccaa tgggcctgca tagactctgc 480
 tcagctgagt ctccagcacg actataagc 509

<210> 3
 <211> 534
 <212> DNA
 <213> Homo sapiens

<400> 3
 gaaaaggaat gttattgatg aattttgaga taatttttgt atatagcata gggttaaggaa 60
 aagagagggtg taaaggatta gagatcagtc ttagaatgta cctgggtggac acaactctcc 120
 caaagggcta tgttccatt gctgtgtgcc aattgattga tcatgaagtt tgatgggtgc 180
 agctgagcta ggtacgacct gtggggacaa agcagggtact ggcatgagtg gcttccagat 240
 ctcacccatt acaagatcaa tctcacattc cattccccca agcctccaaa attagacaga 300
 acttgcattc ttctccaggt tctaaaactc aaccatttgt ttgtgctcat ctttgtctct 360
 ttgtcccat gcccccagcc tgtggcaact accattctac tgtctgtttc tatgaattta 420
 actactctac atacttcata taaatggaga catacagtat tttatgggtt tcttgagggt 480
 ggcatatttc aattagcata aaatcatcac gatccatcca ttcggtacca tgca 534

<210> 4
 <211> 595
 <212> DNA
 <213> Homo sapiens

<400> 4
 aaggggatct gtgctgagac cgggagtctg aagttcaggt tcctgccctg ccactaacca 60
 accattggag ggacattctt gggcctcagt ttctcatct gtaaagccct ggtgattctc 120
 gagagtctct cacacttctt tgtagacaga cgccggggct caggcaagaa agcctacgct 180
 aataagcagc ccaggggaa gccagcagca ggggcccttc cctcctggct aagaaaactg 240
 ccactgggga gaagaggagg agagcccagg cctagctctg aacgtacctg atgtcattc 300
 ccctccctgg tccacagttc cagcagattc actccagcat tttaggattc tgcgagattt 360
 gtctgagggg cctgatttat aggagagagg aggccagact tgccctccc ttaccgact 420
 taggatggta aagcaacttg ggaaaagcat ttactctcag ctcccgaat tacccttcac 480
 tttcctggca gataaatggg gcaaaacaga agatgcagtt acatttaaatt ggagcgaggc 540
 aggtggaagt ttataagatt tgaatacact ttttggtgc ttttgaatat tcatt 595

<210> 5
 <211> 341
 <212> DNA
 <213> Homo sapiens

<400> 5
 cttcttcctg taggaaaatg cacatcattt tttaggtgct gagacagagg actaagaaat 60
 caatgacata aaaatgcata ctttaatat ttttctttaa aactattatc ctaaggtgtc 120
 ctacatacta taatttataa gtatctggaa gaggtaaaac aattttattg aggccttgta 180
 aaatatggca ggtgcctagg acctcatgga actcaggtat cttcagtagg atgtgaaaca 240
 tcacatcatg gggcgtggtg cagtgtgagc aggtaaagaa aagccagttc ttccacatgt 300
 aaactacttg aactccattt catctttttt cataccatct c 341

<210> 6
 <211> 241
 <212> DNA
 <213> Homo sapiens

<400> 6
 cagacgggga gtcagtactt gagaagaccc ggaaggcggg gagcacttgg actccagacg 60
 gggagtcatg actgagagac ccggaaggct gggagcactg gactccagac ggggagtcatg 120
 tactgagaga cccggaaggc tgggagcact ggactccaga cggggagtca gtacttgaga 180
 gaccagaag ggggggagca cccgaagact ccacaccggg gagtcatgac tgagagaccc 240
 g 241

<210> 7
 <211> 521
 <212> DNA
 <213> Homo sapiens

<400> 7
 ggacacctgg cacggggcct gtgcgtgagg gaaagagggg agccctgtgg gcagtccagg 60
 ccacctgagt tatctcctag cccccagtgc cctgaaggag gggctggccc cccagcgggc 120
 ccttgccacg agccacgatg tctgtgccgc caggaagccc tactgcacca cgtagccacc 180
 attgccaata ccttccgcag ccaccgagct gccagcgcct gccatgagga ctggaagcgc 240
 ctggcccgtg tgatggaccg cttcttcctg gccatcttct tctccatggc cctgggtcatg 300
 agcctcctgg tgctggtgca ggccctgtga gggctgggac taagtcacag ggatctgctg 360
 cagccacagc tcctccagaa agggacagcc acggccaagt ggttgctggt ctttgggcca 420
 gccagtctct cccactgct cctaagatcc tgagacactt gacttcacaa tccacaagg 480
 agcactcatt gtctacacac cctaactaaa ggaagtccag a 521

<210> 8
 <211> 624
 <212> DNA
 <213> Homo sapiens

<400> 8
 ttttgttccg ttacacttcc aattttggac ttctttgtgt agttttacaa gagggatatc 60
 tcttttaaaa aaaaaaagca caacaaattc cacacacaaa atataagtac aaatcagctc 120

tctgcatgag tgggtctcca tctcttgctt aaccaacagc tgatggaaaa tattccgggg 180
 ggcagtgggg agagctgaca atgcaaaaat aaaaataata taaataaaaa ccaatatagt 240
 ataacaacta ttcgcatagc attacactgt attatgtata taagtaatct aaagatgatt 300
 tcaagtatac gggagcatgc gcatactttc tcattttata taaggaactt gagcatcact 360
 ttttggtatt gggggtaggt cctagaacct attccccct gtttccaagg caagactttg 420
 tataaattgc gtgacatatt aaatgtaatt ttaaaacct ggtaacattt tccgagtcc 480
 acaatggcag cattttcagg attttagcct aacctttaac ctaacaaaat actatgatac 540
 ttcttgagg tagttttatt tttaaataat ttccttttcc catttggtaa gaaacatctt 600
 ggtgtttatg aataaactta atgc 624

<210> 9
 <211> 443
 <212> DNA
 <213> Homo sapiens

<400> 9
 cctctaggcc agggcccca gtgctgagct gggcagggaa caggactcag ccctggatag 60
 tgctggggtc tcctgctgcg ttctttcaac acagcgctca ccctgaggtg atgcattgcc 120
 cttccccag gacatcctgc gatacacaat gtcctccatg ctgctgctta ggctgggtgag 180
 ctctatgcc tggggaggtg ggatgggaaa gccagctga gtccagctca gaactaccag 240
 ccttcatcaa catgctgagc ttaggggcat ggatatgtgg agagcaggag cctcagtgg 300
 gcccttgtgt cccagtcct ggctggacac tcgcctggcc tggaacacta gtgcacaccc 360
 gcggcacgcc atcacgctgc cctgggagtc tctctggaca ccaaggctca ccacctgga 420
 ggcgtaagtg agacagttcc tgc 443

<210> 10
 <211> 563
 <212> DNA
 <213> Homo sapiens

<400> 10
 aattgaagga ttagaaaata atgttagaga aaaacctacc agaacaacaa aaaagaaatg 60
 aaacatagga gagaaatatt agaaaactag aggatcaatg cacaaggcc gacagtggat 120
 tggaatatta agagttccaa aaagagaaca gaggaaaaga tgaggaagaa attaaggatg 180
 aactaacctg aagaaaattt gccaaaacag agaatgagtc ttcaatgcta aaagggttgac 240
 tgagttccca aaaaagaccc gtcctaaggc acatcagtgt gaaattcagg acactgttat 300
 taaggagaag atcctaaaag tttccagagc ctaagaaaaa aaagaaaaag aaaatgtcat 360
 cagagtcttc aatagcaatg ctggaacctc gaagacaatg gaggaataaa tgcctttaaa 420
 attccaagtg aaaattattt tcaacctaga atttggtatc aaaactacca atcaagtatg 480
 aagagagaat aaatcagaca tgcaagaatt tgaaaaattg atctaccatg ttccttttcc 540
 taggaagata ctggagatgt gtt 563

<210> 11
 <211> 485
 <212> DNA
 <213> Homo sapiens

<400> 11
 ctggaaaggt ccatcgcggtg gctgaactgc aaccacagct cactgagtg ctgcttctgg 60
 gcctcgtggt cccgctgggc ccttggtccat tctgagcccc ctgtcagctc tgcctccgca 120
 gggcccggca tctgccctgc tgatacctct ggctccttca cacctacaga aagacagaga 180
 ctgagccatg ggctgcaaat gtcacctgtg gagggaggga gacagggaag gaggcaggag 240
 cagagaagtg gaggtggggg aagaggaatg tgacttccct caccgggcag gtgggtgggg 300
 ggtgagaccc gggcccttat tttccttctg gggcgagtg ggacagcatc tcccggggct 360
 gttgcagtgg agcagcaggg agtgagacca ccgaggcagg ggtgggggct ggggtgtggc 420
 cacgtgcagc aggtgggtga tgaagatggt ctccagcagg ctgccacca tcagggacag 480
 gcaca 485

<210> 12
 <211> 527
 <212> DNA
 <213> Homo sapiens

<400> 12
 tagatgataa ttacggcttt tttttttgt ggtttttatt tgaaaactcg tatgatctat 60
 aaccttcgcc gggagtgatc tgccgccact agggcgagc agatagctca ggggagactg 120
 acgtcatcta cttactcatc atctgccgga aatcacaac atcatgggtc cctgcgtgct 180
 catctcaggc ttggtgctgc tagcctactt cctgccggct gcctcaccag agcctgggca 240
 ctgccgcccc ggagatacgc tgctgtgggg atgccgtgaa cttcgtggcc aagaacatga 300
 gagggcagga cacgagaggc caggacgcca tcggcgaggt tggacaggag ccagaggcgg 360
 atggagcgcg gcagaggcgc cccactgtc tcccgtgcca ctggctcctg cagctgcccc 420
 ttttaaggact gtttgtgccg acccttcccc aggaagtgc ggcatctgct tctgggtcgc 480
 tcgggtgctc ttcagcctgg gctccaacct tatctcatcg tggccta 527

<210> 13
 <211> 451
 <212> DNA
 <213> Homo sapiens

<400> 13
 atgacagtac caaagcgcg cctcagaaat atgagcaact tctccatata gaggacaacg 60
 atttcgcaat gagacctgga tttggaggtg agtattatcc tctcaaaatt catttcaaaa 120
 cccattgcac tgtcaaaatg gaggtgaaaa tttaaaacaa gacaaaatg caagtaaagt 180
 ccatcagttt aaaacaaaaa aagaaggctt ttacaatcac cttctcttta atgagaacaa 240
 ttgatgagtt atccatttta aattgaccaa aaaaactcat tttcctacta tgcacactgt 300

```

agtaaatagt atgtgttcca taaatacgag aatggatata tgttgcctat acaccaactt 360
atatttctaac taaaaatcct taaattggat acatggttat ttataaaatc ttattgaata 420
ttcttatgag ctagaaatgc catgctttgg g 451

```

```

<210> 14
<211> 524
<212> DNA
<213> Homo sapiens

```

```

<400> 14
cccacaaggg tctgttgtcc accccgcgtg gaccgcccag gccggtggga gtcaaaaaag 60
ggggaggggc gggggatcct ccactttctc accccgagtt tctttgcttg cttgccccga 120
gtatctgtca agaggcagcc ctctccccta aaggccccct catcctgaac gtgcatgatg 180
cccctgcagt gacaaataca gaatcttagg gggcctggat tcgaggccga gctaatact 240
gggttgctgc ggggtggtag gttatttaaa ccacctggaa atcagtttct ctgggttatg 300
gggattgtac ctggctcact ggatttgagg agtaaccaga ttttaggaca gactctttct 360
ctgtccgtcc tactcagatc ccagtaggaa acttaccctt cccctgcgcc acggagtgca 420
aagaaaacag cccaaagact tctttaacga ctctggatcc ctcagccaga tcacggatat 480
ggaaaaagct taaattagaa agaggaggtc gtgaaggac ctcc 524

```

```

<210> 15
<211> 501
<212> DNA
<213> Homo sapiens

```

```

<400> 15
agactcagct gagcagagtc tctgcaggcc cattggctgc ctagccagtg gtgatctcgc 60
tcccaccctc atttcttctt tgtaacaaa accatgacct cattaaatac tggacaccta 120
taaacctcat ggaccctcct ccagcctccc caccgtgtac cggtagagtct aagtcaactc 180
tagtcaattc attcctctgg acattgactg cttagggctt gggcatgagc tgcctcttca 240
cctgagcctg agccacaggt accctctgca cctaccacgc tgatgcactg ggccagggag 300
agcgcctgtc ggatggagat gagctgtgag gagctggtgg ctgggcggat caggttgttg 360
taacaggttt tgttcaaaaag gtcgtccatc aatttctgct cggcatgggc catgcggcag 420
tcccctgggt aaacacacag acatgctggg ccottgtgca gctggctccc actgcagctg 480
acagctatga agcaggagct g 501

```

```

<210> 16
<211> 664
<212> DNA
<213> Homo sapiens

```

```

<400> 16
gtgggcaggg cgggggaggg agggacatgg ctgtagccgt ggagatggga ggacagacag 60
gacttgggtg ccacttgggt gaaccaaggg aggggtcagg aagagacacc cagttttgta 120

```

```

tcagatgtgt agagcgtggg atgctgttca ttgattgagg gaggaggagg aggaagaggt 180
atggcatggg aggaggtagc tgagctctgt catgaatgtc atttgaagtc cccagggaga 240
gccaggccgg ccagcccctt cactgcttta gccagctctc aggggtgtctg tgctccctgg 300
ccctctcagc tcctgcttca tagctgtcaa ctgcagtggg ggacagctgc acaaggacca 360
agcaggtctg tgtgttttac cagggttctg ccgcatggcc ctgccgagca gaagctgatg 420
gacgaccttc tgaacaaaac ccgttaccac aacctgatcc gccagccgc cagctcctca 480
cagctcatct ccatcgagat ggagctctcc ctggcccagt gcatcagtgt ggtaggtgca 540
gagggcacct gtggctcagg ctccaggcga gaggcagctc atgcccagc ccaaagcaat 600
caatgtccag aggaatgaaa tgactagagt tgacttagac tcaccaatac attggcgggg 660
aggc 664

```

```

<210> 17
<211> 628
<212> DNA
<213> Homo sapiens

```

```

<400> 17
gtcctgcgcc tacacctggg cctctgtacc cgtcagttcc cccagtctgg ttcttattcc 60
ctgcaaagag tagggagcct gtaagggtcac ctgttgagca agctggggga gaaaagtagg 120
gtggggatgg gaggatcagg atgagaagct catggctctg ctggagactc agctgagcag 180
agtctctgca ggccattgg ctgcctagcc agtgggtgatc tcgctccac cctcatttct 240
tctttgttaa caaaaccatg acctcattaa atactggaca cctataaacc tcatggacct 300
tcctccagcc tccccaccgt gtaccggtga gtctaagtca actctagtca tttcattcct 360
ctggacattg actgcttagg gcttgggcat gagctgcctc ttcacctgag cctgagccac 420
aggtaccctc tgcacctacc acgctgatgc actgggccag ggagagcgcc gtctggatgg 480
agatgagctg tgaggagctg gtggctgggc ggatcaggtt gttgtaacag gttttgttca 540
gaaggctctc catcagtttt ctgctcggca tgggccatgc ggcagttccc ctgggtaaac 600
acacagacat gctgggccct tgtgcagc 628

```

```

<210> 18
<211> 348
<212> DNA
<213> Homo sapiens

```

```

<400> 18
ggctgcatcc atatttatcc aaagggaac ccaggacaaa attactataa gcaggcttgg 60
gatgtacatc tggatcaaat aatatcccat ttggcggtcc agatgaaact tgacctcaat 120
gcaggtaaac tttcctagaa ggaggagggg gtcattttaa gtccagcctg aatttatatt 180
tccaattcca ttatcccacg ttgtttaaaa aaaaaaaaaa aaagactact gcagatggat 240
ttggaagatt gcacaaaatg ttcaccctac gtaaccaatt caactcttct ccaactgaac 300

```

cagtaataga aataattact gggaataat agtgataata atagtgtg 348

<210> 19
 <211> 569
 <212> DNA
 <213> Homo sapiens

<400> 19
 attgcctatc tagtccttgc agccctgggg tgggtcttgg tttgtgggga ggcggagtag 60
 ggaggaagga gtccaaagga gaaaggcagt gggccgctcc ctagttgtac tcaccaagcg 120
 ttggcgccctc tgccttcttc gaagtcgtat gaattcttta tgctgacgag aaacaaaatt 180
 tatggcagca tactccagca aggcagcgaa cacaagagc agacacacag ccatccagat 240
 gtcgattgcc ttcacgtagg acacctacaa catccagcga cagaacgatc aaccttcttg 300
 aagtccttcc gtggcctact gagggtgatt tcaacccta tcgattgcct gctctttttg 360
 agctttatcc tgaatttctt ctggtgttta aagaagcctt ccatgacata tcccattgtc 420
 tgaaagccca gatggaaaag atcgactgc ccatcatact ccacctcttc gcactctcca 480
 ccctctactt ctacaagttt ttccttccta caattcttcc ctttcttttc tttattcttc 540
 ttgtacttct gcttctgctt tttattatt 569

<210> 20
 <211> 534
 <212> DNA
 <213> Homo sapiens

<400> 20
 catttttata ggcattctca atgtcttaat tcaagagagg taaagggtgga actacttcag 60
 gcactgtgag aggggacata cgtttgggca gagaagatgt cgctcaaata gccccccaaa 120
 acagcacaaa cacatttgtg cgtaaggctg atgccttccc gttccccagc cccatggaac 180
 agccagatca gcaaataacg tggggatgaa aaacacactg ggctaggggt tagggacccc 240
 tggtttctag tctcatctgt gccaagaatt ggctgggtgt gcttgagtaa gttcctccca 300
 actctgagtg gcccttttcc tgtctgtgat gtcagaggt cgggttaact ggctgttatt 360
 ccaggctctc tgtgactcta tatagacact tacagctctc aagctgcata gtgcaggtct 420
 ggatgtccat gggaagttc ttgaggtcca tcaggcagga caaatgagg gtcagcctag 480
 tggggacagt aagaagaag tgacatcggc ttactggggc ccatcacagt gcaa 534

<210> 21
 <211> 439
 <212> DNA
 <213> Homo sapiens

<400> 21
 gttgaacaaa tgttgatgga gtgccaggcc caactaaatg gagatgagtt tgtcaaattc 60
 cgtgtcccca agagcttgga gtctaagaa gcaggtcatt tctaagtg cagtgtttct 120
 aaggggaagc ttgctctaata gaaaactttg gcttttttcc acaggttggt acaataggct 180

tttcatcaac tttgtgctaa ggaggcatgt tttcttcttt gtgtgcaaa cctatttccc 240
 agccatattg atggtgatgc tttcatgggt ttcatttttg attgaccgaa gagctgttcc 300
 tgcaagagtt tccctgggta aatctttccc catctttata aaatgttaac aatgggagaa 360
 agttcaaggg aggtaaataa aatgggtcat acatggagag gaaaagagag tgggtggttta 420
 gtagggatag tcagagatg 439

<210> 22
 <211> 622
 <212> DNA
 <213> Homo sapiens

<400> 22
 tacctgtctt gacagcctcc cagcctactt gctcacttgc cctccttct cctccccacc 60
 aggtggccat caggcacagg tgcaggccca gccctacgt ggtaaacttt ctggtgcca 120
 gtggcattct gattgccatc gatgccctca gtttctacct gccactggaa agtgggaatt 180
 gtgccccatt caagatgact gttctgctgg gctacagcgt cttcctgctc atgatgaatg 240
 acttgctccc agccactagc acttcatcac atgcttcaact agtacgtcct catccatcaa 300
 gagacaaaaa gcgaggtgtg tgttggtatg ggagagggat gggcagaacc aggcgaagtg 360
 aaaagggatc ctgaaaaaag atcctctggg aaagaaacaa gaaattctag gtggcgctc 420
 tggccctcat gcagaccccc ttgcctgcag gtgtctactt cgccctgtgc ctgtccctga 480
 tgggtgggcag cctgctggag accatcttca tcacccacct gcttgcacgt ggccaccacc 540
 cagcccctac ctctgcctcg gtggctccac tccctgctgc tgcactgcac cggccaaggg 600
 agatgctgtc ccactgcgcc cc 622

<210> 23
 <211> 584
 <212> DNA
 <213> Homo sapiens

<400> 23
 cccagcactt tgggaggcca aggtgggtgg atcacttcag ttcaggagt tggagaccagc 60
 ctgggcaaca tgggtgaaacc tcctctctta aaaaaaaaaa aaaaaaaaaa attagccagg 120
 cctgggtggtg cgcctgtagt cccagctact tgggaggctg aggctgagac aggaggatca 180
 tttgagccca ggacatggaa gttgcagtga gctgagagca tgccactcta ctccagcctg 240
 ggtgacagag caagatcctg tctcaaaaaa aaaaaaaaaa aaaaaggaga gagagaaact 300
 gcggcccctg cctcttgctg tatctctcct ccagcatgga tgtggataaa accccaaaag 360
 gcctcacagc atatgtaagt aatgaaggct gcatacagga taaaaaaccc atgaaggggg 420
 acagtatctg taacctggac atcttctact tccccttcga ccagcaaac tgcacactca 480
 ccttcagctc attcctctac acaggtaagt tgcagtgagg tctcagggat ggggtgaatg 540
 agagcaacca acaaatttaa agaaactatg agtaaattgt gacc 584

<210> 24
 <211> 243
 <212> DNA
 <213> Homo sapiens

<400> 24
 tccctacact attctgggct gggtagggag ccttggtgc tccaagggg ctgcttgcc 60
 caattctggg catccccggg gtgtgctagc ttgacctag gctgctccct ggaagcgagg 120
 ttgacacaac tccttcccca cacacaggag tggagcgact acaaactgcg ctggaacccc 180
 actgattttg gcaacatcac atctctcaag gtcccttctg agatgatctg gatccccgac 240
 att 243

<210> 25
 <211> 246
 <212> DNA
 <213> Homo sapiens

<400> 25
 ttatgcccgg gggatgatccg ccgccaccac ggtggcgcca ccgacggacc acgggagact 60
 gacgtcatct actcgctcat catcctccgg aagccgctct tctacgtcat taacatcatc 120
 gtgccctgtg tgctcatctg gggcctgggt ctgcttgctt actttctgcc agcacagggt 180
 aagcagtggc ccctaacctc cccccaacc cgggctcgtt cccgggaggc ggggcccgtt 240
 ctcaact 246

<210> 26
 <211> 439
 <212> DNA
 <213> Homo sapiens

<400> 26
 caggcaggcg cggcagcagc tccaggagaa cctggggcag gggcggggct taaggagcga 60
 ggttagtagc aagccccacc ccgaaaccgg gctgcaccgc cccctccgag cttacgtggc 120
 gcagccgcgg ggacatggcg tgggtgggtg gcgtccgctg ggacacgttg agcacgatga 180
 cgcaattcat gacaatgagc gtggcgacca ccatgacgaa aataaggaac ctgaggagcc 240
 cggtaaaggc tgacatcacc ggtcctcctt ccagctaccg aaggcgccgc gcgctgacct 300
 cacaaacacg gcttctcctg gtacgggctg gttacgcctt ccagctgcgc cccctacacg 360
 acgacagacg cgtcccccaa cccttctaac tgtacctacc acttgtggcg gccatgaagg 420
 ggacccccag ctccctgga 439

<210> 27
 <211> 597
 <212> DNA
 <213> Homo sapiens

<400> 27
 ctctgcaacc tggctcgtct tccctaagg atacaatgct taccgtagtt ctatgacatg 60
 aaacatgctt tgtgttggtt gctgatgtat tgagtaatag aatgtcagat ggaagcaagt 120

```

aaattatttt acaatgtatt ttaagcctta ctgggaaaag taacaccaac aaatactatt 180
aagaattcat tgatgtttga ccttacatag aaagtaagtc gtccataaat atttgcaat 240
ggtgaaagag tgaataaata agcaattaag caatatctat tctttcattt gggcttaata 300
tttgtctttt ttccacagca tcttgactcc aaatatcatc tgaagaaaag gatcacttct 360
ctgtctttgc caatagtttc atcttccgag gccataaag tgctcacgag agcgcccatc 420
ttacaatcaa cacctgtcac acccccacca ctctcgccag cctttggagg caccagtaaa 480
atagaccagt attctcgaat tctcttccca gttgcatttg caggattcaa ccttgtgtac 540
tggggtagtt ttatctttcc aaagatacaa tgggaagtga gtaccagtgt tgaatag 597

```

```

<210> 28
<211> 263
<212> DNA
<213> Homo sapiens

```

```

<400> 28
gctctttctc ccaggaaagt ttctgggcag ctgccgccgg gcgccaagac aagcgagggt 60
ggcctgagtc ctgtgtcac atggcgatg cgcgccagta gatgacattg acggccgcaa 120
acgcgcgagg gaacacagcg cgggcgttaa tgtcaatggt gtctgcgtcc atgggcctga 180
gccggggcacg gatgcccccc tggcctctg agcggggtgc cccctccttc ttcgtctccc 240
ctgtctccac cccaccgac ctg 263

```

```

<210> 29
<211> 401
<212> DNA
<213> Homo sapiens

```

```

<400> 29
caactgttgt gaagagatat acacagatat aacctattct ttctacatta taagattgcc 60
gatgtttttac acgattaatc tgatcatccc ttgtctcttt atttcatttc taaccgtgtt 120
ggtctttttac cttccttcgg actgtggtga aaaagtgcgc ctttgtattt cagtctgtct 180
ttctctgact gtgtttttgc tggatcatcac ataaaccatc ccatccacat ctctggtggg 240
cccactggtg ggtgagtacc tgctgttcac catgatcttt ggcacactgg ccatcggtgt 300
gactgtgttt gagttgaaca tacactaccg caccccaacc acgcacacaa tgcccagggtg 360
ggtgaagaca gttttcctga agctgctgcc ccaggctctg c 401

```

```

<210> 30
<211> 213
<212> DNA
<213> Homo sapiens

```

```

<400> 30
ctccccacg cacgatgagc acctcctgca cggcgggcaa cccccgagg gggacccgga 60
cttggccaaa atcctggagg aggtccgcta cattgccaac cgcttcgct gccaggacga 120
aagcgaggcg gtctgcaacg agtggaggtt cccgcctgt gtggtggacc gcctgtgcct 180

```

catggccttc tctgtcttca ccatcatctg cac 213

<210> 31
 <211> 639
 <212> DNA
 <213> Homo sapiens

<400> 31
 ggattcaggt gtgagccact gcacccggcc tagagcttct tttttgcttc ccaaagagcc 60
 atagggtcaag aggacaatca aagaagctgc tgggatcaga agtcaaacag gggcccctgg 120
 actcacataa aacatgatct ggtcatatag gttgttgccc atggacatct ttgggggtggc 180
 cttgttgatg cccaagagct cccactcccc ctgggttttg atgactttgc gagacgtgtc 240
 tgtgatctcc cacacctcct tgtccatgcc cagcagcatg ctgtccactg gaagggaggc 300
 cggtcagttc attgcagacg ttttcccaag cctcccgccc acgaaattgg agtcctcccc 360
 cactgagctt ctaaaccaaa ttttcctcta tccttttaaa gcagggtatc ctggttttct 420
 cagaagtggg ttacccgact agcaattcat atgtgtgtgg gcagcggcat taatttcttt 480
 tgtgtttgaa aacaagagtg agtcaagttc gttatgggaa tattggatat gactgaaacg 540
 tgagtcaaga acttttggag tcattcctat tttccttctc agtccccag tcgtatggtg 600
 gtgttttagt ggaatcaagc ttgaatagct caatatattt 639

<210> 32
 <211> 685
 <212> DNA
 <213> Homo sapiens

<400> 32
 cttctgcatg actcagaata ttctccttgg catggatttc tgccacagat ttgtaaaaca 60
 gaaacacaaa agctctatct aagaaggaaa ccccatgtac acacttcttt ttaccacccg 120
 cagtcttcaa ctacacaata gcaatgtgtg tctccataac acttgtcttt tgatttgtct 180
 tgtcttttga tttgttcaat cattgcatgc ctctataata taaatattat attaccatgc 240
 cttctaaggt cattgatgaa agttatttta ttcacacctg catcttctat tcagggttttg 300
 gcacatagta ggcaactata ataaatgtac aatcaatgaa gcaatgctgt gcatttttaa 360
 ctaaagatag ctaactaaag tcaaagaacc caagtaattc atttgagtac aactgttca 420
 gctggaaccc aaacagaaat ccaagtcttt attcttcaaa taccaccagt gcttttagagt 480
 ttggcacttg gcctctccta atcttgtact taaatcctga catgtttatt ttgcatttta 540
 aaagccaacc gctttataaa atgctttgac ctactttttt gttttttata agcctccatt 600
 ttatacccta tgaaatgatg ataaaagcag tgccaaactt actgaattat tatgagaatt 660
 aaataagata atacatgtca ggcat 685

<210> 33
 <211> 484
 <212> DNA
 <213> Homo sapiens

<400> 33
 cctatttttt tctttattct tctggaagat ttttctgtga gctctgaaca tggactcatc 60
 cttgggaaac actcatcacg gtcattcatg ccacgctttt gctcgttcat ttgcaggctg 120
 cttcctccct gtcactttct tcctcctccc aactgcgaaa cagccttttc atttcttaaa 180
 catttggtggc tccagaaggc aaatcggttt cttccctcct gcccttctgt ttggtattta 240
 aaaacacacc ctgagaggca taaatgcaga tttttttttt cctccagtga attttctgta 300
 accatgggcc tcgctttaag aagactcaac agataacaag tgtaaatgcc gaaaacatca 360
 acgaaaggca gagggccaaa ggggaagggtg atgggttttac taaaaggctct tttttcttta 420
 tttttaaaaa ttcaatgtgc atttccttag tgggtggttat ccttttgtgc tcataaaatg 480
 tgat 484

<210> 34
 <211> 449
 <212> DNA
 <213> Homo sapiens

<400> 34
 atttccctgt tctcttcttt cttcctgctg ctgagttaac tgggtaaaca gaggtggtgg 60
 tagaatctta gttcatagg tcatccatta gctgtatcca aaggcaacta caatcccatg 120
 agactccctg cagacctagc tgggttttgt agaattgatc tggttattta taccactgag 180
 tatttgagac tgattgtcac atcactataa cctacttaca ctgtttgaaa cagacattgt 240
 caattcaaaa caacaatag aaaaccaaac aaaaaacaga tcagggaaag aataaacaac 300
 aacaaagaga agatgatttg ctggtcaaaa cgggtggtga atagagattt tccactgaat 360
 atgagacaca tgaataagaa atgaagggtg gggagatagc aatgaaaata tttggggaaa 420
 gacagtccag actgaggaaa tagcctatg 449

<210> 35
 <211> 579
 <212> DNA
 <213> Homo sapiens

<400> 35
 ttggtataaa taagttctat tttctctcca gtaatatatt ataccagttg cctaaactgt 60
 gaacttcttg aggtagggtt acctgatgca ccctgggtt gtcagtgcac agggaggtag 120
 gcagggcagt gactgaagca caggaagcag tgacactcat cagccatcat caaatggaat 180
 aacataagcg gctgatcgaa actagctgga aggaaattgc agtcataata tctgtaagca 240
 tgttgggttt tttttttaat gttctgccct ttacacctat cattttatga acatttctct 300
 ataccagggg ttggcaaact ttttcggtaa aaggtaagat aataaatatt tcaagctttg 360
 tgggctatatt ggtgtgtgtc ccgaatcctc aatcccgcca ttgcaatgaa aagcagccat 420
 aaatgagtga tcatggctgt gttccaataa aactttatct aagaaacaag tggcaggctg 480
 aaagtgtgta ccctagttt acatcattag atcttctata aaaatggcta taagatattc 540

caggctgtga atatatttatg gtatatattca caaattctc 579

<210> 36
<211> 683
<212> DNA
<213> Homo sapiens

<400> 36
gttacaggag gccttgggtg agaccagtt ctgtgcttgt tttgggactg acccagcaca 60
gctctagaag cgggtggccat aggcagtact tgtgtcacc cactgccagc tccaggtggc 120
tcaaaacagt aaagtaaaga gagactgttt agaagaaagt aagaagagaa aacaagtact 180
ctttgccttg taaatcagag aattcttcca gatcttgtgg aagaccatca aggcagtact 240
tccatgagtc tgcaagaaac cacagcatta gtgggcttag ggtgccccct aaagcagata 300
caacttagat cataacaccc aagtcctttt gaatatctga aaagccttcc caagaagaat 360
gggaacaaac aagcccagac tataaagact acaataaata cctaattatt caatgcctgg 420
gcacagacag acattttacaa gtatcaagat catccaggaa aacatgacct caccaaatga 480
actaaataag gcaacagaga tcaatcctgg agaacagag atatgtggcc tttcagacag 540
agaattcaaa attcagacag agaatttgaa gagtattttt gccagatata ctactctagg 600
ataaaagggt tttttttttt ttcttcttca gcatgttaaa tatatcatgc cattctcttc 660
tggcttataa ggtttccact aaa 683

<210> 37
<211> 643
<212> DNA
<213> Homo sapiens

<400> 37
gaaggggaaat accagaggac agaggaaacag gctaagcttc actgtgagca tgcagttgca 60
aaagccagac tgtgagaaac tacatgtcaa agggcctggg ttcttcaaca gataaattgt 120
caggaaaaga aaggacaga ggggaaatct gtggattatg agtttaaaag aaataaactt 180
caaaaattag caagtctaag ttacagtagc tagggattct ggtatgtggg aagcaatata 240
ggcaatggaa agcaagatat tacttgcaag tagacacata atttctgcta acattctatt 300
gacaaaacc aggtcacatg gccacatctg tccagctcca gctgaggcct gtgaatgtct 360
ctagctaggt agccaagtgc cttgaataaa tgtgaagggt tgattatcaa aagaagagac 420
agtagataat ggtgaatact tattagtctc tgccactccc ttaaaaatgg aatacacaaa 480
ctcgcaactgt gatttttaac ttacactgta cagcttctct gaattattct ggaacttaaa 540
tttgtgcttg tctttacttg ttattcagaa agtatctaga gcctctcttg attttcttta 600
ttttctccct gacagcatca ggaaagtcag aatctcaatc aag 643

<210> 38
<211> 385
<212> DNA

<213> Homo sapiens

<400> 38

```

tcaatttttct aagcaaaaaa taattcacct tttcctgtcc acattattta gcatgatatt    60
tatgtagttt  tccaaaatat tctattttta aatgcactga ctttattttt atatcataga    120
tacatttata  tataaagtat ttcaagatga atttgagaca aattgaagta acaaagcttg    180
atttccattc  tgcatacaat attctctata attacaatgt aggttttggc cacttgtttt    240
gactaacata  gctatgccat catttaaata tctgtatgcc tttgttttct gttaaattaaa    300
attcagacat  acaaagaaat ataaggagag ttaggagaac agtgataaaa gataaaatgg    360
caccacagta  attcctaaat aaggg                                     385

```

<210> 39

<211> 655

<212> DNA

<213> Homo sapiens

<400> 39

```

tcaatgagta cataggaact aatttataca gtaattccag tagtcataga gctctaaaaa    60
tcaacctctc ctcaactact aactctaata ctgttctcct gacatgttca taggtaacaa    120
aagagaaagc tctgttttgt cttccagtcc tatctgccgg aattccaaag agtgctccac    180
ttcgttatat aatgctgcta cataggtctc agaaatcttt tggttttgaa gagggaaaaa    240
tttgaaatta aatatagata aaactgaacc atattcagat caatatgatc ttagaaccta    300
tagatttttg cctgtattat ctacactgag actgaatagc atacatattt tgttcagtgg    360
gtattaatgg ttccatgatt ctaattttgc tcatttttct ggcatgtatt ggctacctgc    420
cctacttttg cagttgacca attttgctta taaagaccag gctgtaatgt ggcccttggtc    480
ccatcatacc atacctaacc ccgctgtatc tgatattagg ttccctaaata aataaaaaata    540
aaactttact atttactcac taactctaaa aatgccttct cttctagttt actataacca    600
cacagagaaa aaccatagat attttataat atagttttaga tgctaagtgg caata       655

```

<210> 40

<211> 663

<212> DNA

<213> Homo sapiens

<400> 40

```

ggtggttaagt gatagattgt gatataaaat gtgcttctta tggagttggg gtccaaaata    60
tttgaaggcc  attggtgtat gctgtggatg cgtcagttgg tttctttgct tcgtccatgc    120
taccttctca  aggaatcagt tctctccac  tgattttggc agtggcagct caatgtgctc    180
tatgatecca  gctcaaccga agacacctag ataagggtga acatctaacc caagagaaaag    240
gaatatatga  acaacctgag ccaatcatcc catcctgagg agaggtccaa aagacatccc    300
ctgagggttat gtgcaattgt gggctacagc tgtaagaaca taagaagcac tagccagtc    360
ccaagagatg  gagagaagcc cagtgaagct gtttatgcgc aaagagagtg attttgagtt    420

```

ctaaatttcc aactctagtc cttatgtggc caagctctta ttgctgaccc gtggatatgt 480
gagagattgc ctgcagtgtc tgtgttttta tttgcaataa atttcttaag catgctagag 540
taggttcagt tccttggtac caactgctct ctcaccaagg cagactcttg gggagtata 600
atatcaacaa gtaaataattt attgtgtaaa tatataatga taactatttg gtgcctctgt 660
gtg 663

<210> 41
<211> 551
<212> DNA
<213> Homo sapiens

<400> 41
ccatctgcac aatttcagca gccaaagcaca ctatgtcact cccaagtct cccagtcct 60
tgtgatgggtg ggggcaaccc atctggaaca gctgctgtga ggaaaccagc tgcagcaagg 120
gaggtgtgcc tggggctgca tgctcatgga tcctgcagga gccagaaatt ggtgatccca 180
gcaggagccc ctatgcccc ccaagttgat gcagcaggag ccccatgctc ctgggcacag 240
ctgcagttgc ccaactgtgg ctccagatct gggcatctct gcactcttg gggcccagga 300
agtcccctgt cccactggc tcagaatttg ctgctcctgc ccttgggcag tgccctgtcc 360
agtgcagagc gaagttgtgg ccaagcccag gtgctatcac agcctagcca gatgtgcatt 420
catttggggg gtgctgacac accagcccc tgccacctca gccctctctg gactttgggc 480
aacaacaagc atgcgagggg gggcagggg ctgaggcagc ttggcacagg cctgtgggca 540
cccctcagca t 551

<210> 42
<211> 625
<212> DNA
<213> Homo sapiens

<400> 42
cattgttcta atcccggtt ataaattatg tcaactcaatc ctcatacccc tttgaggcga 60
aggtattaat tcttcccatg gtccacatga ggaaacaggc acaggagaag cttaaataaca 120
agcccaagta gaggcctaga gcaagaaagg ccctagccca ttccatagac gtccacaaag 180
gaggaaaccg agtcccagag acagtggagc ctctccagat tcagtgtgac cgcacagggc 240
tgtaggagtc cagcctgggt gttcccagct cagtctggct ctctgacccg gttcctactg 300
aagatgactc ctccaggaag tccacaggat ccttagccct aaagaacctg gctgggggtgc 360
agaggaggcc aggaaggag agccaggggt ggagcggaga gaggagccca ggggagagta 420
cctcgggctg gccagagcc cgcgggagag ctcgagagcta gagctagagg ggagcacatg 480
ggagaggact cggaggcaga ggtcaggggc agaggcctgg gaacagacac acgggccgcg 540
ccacccccgc gcccgcctt tgtacccgc ccggcccagc tcccttgccc cgggatgtac 600
agcacctgcc cgggcccgt gcgca 625

<210> 43
 <211> 465
 <212> DNA
 <213> Homo sapiens

<400> 43
 ctctaaacat tgggttaatat tagacctgtc tgcaatgatt tctcctaaat atcattacca 60
 gtgtcatttg gtctcattct tacataagaa tctttctcca ttgtctacct gctgttttcc 120
 ataaatatta tgcttcattt atagtgtgtt acttcccttt tgaggaaaac aacatgagtt 180
 ttgcatcccc tccaaaaact catgttgaaa tttagttggc attgggaatg gtattaagag 240
 atggagacat taaaagggtga gtagggccatg agaacactaa cttcatacat ggattaatgt 300
 tattggggaa gtgggattat catgagagta caatccggta taaaagcgag cttggccctt 360
 tctggctctc ttatatgagg gctctcttgc tcttctgcct tccaccatgg gtagatgcag 420
 caagaagacc ctcaccacat atggggccct cactcttatg cttcc 465

<210> 44
 <211> 546
 <212> DNA
 <213> Homo sapiens

<400> 44
 agcagtccag gatgtgttga gtaggggtga ttgtggcata tctgaggatg gttctatcca 60
 ggtacaggaa tgacaggagc aaagtcctct caaggagatc ttgcctgaca tgcttgagaa 120
 agagcaaagg caaactagtg atggtgccat gaaagcctgt ctattaagac cactactact 180
 ccttctctgct tgacacctca ccactcacac cccttttttc tataccaagg gttgaccagg 240
 gccagttcca gcctactacc tgttttattg gaacaaaacc atgctcattt gtttacttgt 300
 tgtttatggg agttcttatg ctacaacaag agttgaatat tactgcagag actgtatcgc 360
 cctcaaagag cctaaaatat gtaccatctg gcccttagca gaaaacgttt gctaaccact 420
 actttatatc atgctcttta gttgatgcgg ttgtcaaag cgaacatccc agaaaaatac 480
 tgctttggac atctttataa taatgaaata tgcattttcc atgttaaaat ctcgttactg 540
 atggta 546

<210> 45
 <211> 688
 <212> DNA
 <213> Homo sapiens

<400> 45
 ggtcagccgt gttttgtgct ggtatattgcc ccgattacca gtcttaaagt cttatttaaat 60
 ttcacactct tcagtgttag ttgtgcaaag tcctctggc catggcagtg agcggttggg 120
 ctgtgccgcc aaactctccg tatcaatctg gcctgggact caaccaagtg atctctgact 180
 tttgaaaga gtctgtcttc agagttcacc cagaagatgg cttaattaga catctccctg 240
 agctgttagg ccttagacgg gtgggagtc tgccctgccc aagctagctc aaggacgagg 300
 cccgcctgga ctcagcttgg agccacgtga tgggcgtgag tgtgtgagct cctggtaagg 360

```

cgcgagaggtc agatggagac cttgcatcct gcccgagaag tgccccaccc cctccaatat 420
ctggccttttc tctgcataca aaccaagctg aaaacagtcc actaccacc acccctcata 480
gctatggaac caaataaccc agaaattaaa agcttcactg tagctgtcct tttccccatt 540
tcctaaatgg aatttaaaaa gctctggctt gtcaaaaggg gaagattatt ttctgaattg 600
gaagtctgta gatataattga gcaacagcca ccctctctgg gtccctgcaa atgggtaccca 660
tttttccaac ccacagctct agctgctc 688

```

```

<210> 46
<211> 663
<212> DNA
<213> Homo sapiens

```

```

<400> 46
ttgcctttct ggatatcatc aacaacccat ttcttaatgt gacataataa tatttcaaag 60
tgtaattga agtactactt actacctccc agtgtagctg ctcaccatcc atctttgaca 120
cccaaattga tgaacacgta ttgcagaaga gacagtcgc agctaagtgt gacatcctta 180
gcttccaaat ggacaaacaa gtaaaaaaaaa tgttttcttc ctgccccaaag actctacaaa 240
agatcctctg agctgcagat ggacaaaaga atttagatta caagagaaaa gacacagtac 300
cagggtgatt tattctatca tctctccctg gaataaatcc tatgatggag agggaaaact 360
gcctcacaat ggcttttaaat ttgggaacct gataatagaa aggattggac ctctgtctat 420
tctgtttcaa actatggta ttgtagtca tatagagctg ggagtaaggg gttagggaag 480
agtaattctg caactcctgt ggtgctccta aagatgaggg acaacaatca accctatagg 540
aaagacctgg aaggactgaa attgggctga aaaatctgaa taagcctgga taaaggacct 600
ggtagggtgg agaataacct aaggacctga ttatcaaagc tagggcaaaa atcttgaaca 660
tct 663

```

```

<210> 47
<211> 703
<212> DNA
<213> Homo sapiens

```

```

<400> 47
gatatgtcac attttctgac ctaggtactc gcactttagc aaaaacaaaa acaaaaacaa 60
aacaaaaaaa acatcaaggt tcctgagcaa gagaacttta cacatagtgg ggactgggaa 120
agagtagagg caaggacctg gaaggaagcc acttacagca gatgcagagg tcccactagg 180
caggaatgta aaggaggggt tggatgaaac acagttaacg tataaagggt aagagattac 240
aaattcaggc tggagggtag aaggaagaag tgaaactgac tcaggttctc agagtgggag 300
aatggtgata ctgtgctcta agactgaaaa tcagaaagaa gaataaattt aggggagtg 360
gaggggagaa ggaagtgtaa aattatgaat ttagttttct atttgttgag tgtaaggtag 420
tcattgaaaa tctaaaagat gtgtagaaat cctaatagtt gatccagaga gtccgcatag 480

```

tgacacaaat tttacaata atgctaattt ctactgagtg gaggtctacc atgtgtcagg 540
 tatgctatgt tcaatttcat tgagtccata caaggatcct ataaagtagg tatgattgag 600
 tccatttcac agatgaggaa gtggaggctc tgaaatgtta cataacctgc ccagggtcac 660
 aggtatctga ctctggccat tatgctcttt ctactgtgcc cta 703

<210> 48
 <211> 682
 <212> DNA
 <213> Homo sapiens

<400> 48
 ctctgtccca acttcctggg ggctttgttt acaccatgat ggaaaaactg cctactccag 60
 tctcagtaat ggcaaatgtc cctcccacca ccaagctcga gcatcccagt attgacttca 120
 gactgctgtg ctggcagcaa gaatttcaag ccagtggatc ttagcttgct tggctccatt 180
 ggggcaggat ccactgagct agaccacttg gctccctagc ttcagcccc tttccagggg 240
 agtgaacggg tctgcctccc tggcattcca ggcaccactg aggtttgaaa aaaaaaaaaa 300
 tctcctgcag ctagctcggc atctgcccac atggctgccc agttttgtgc ttgaaatcta 360
 ggtccctggg ggtgtaggca cctgagggaa tctgctggtc tgtgggttgt gaagaccatg 420
 ggaaaagggt agtatctggg ctggaatgca ctgttcctca tggcagagtc cctcagggct 480
 tcttttggct aggggagggg gttccctgac cccttgccct tcccagggga catggcactc 540
 caccctgctt ccacttgccc tctgtgggct gcaccctagc tctaaccagt cccaatgaga 600
 tgagctgggt acctcagttg gaaatgcaga agtcattcac cttctgcatt gatcttgttg 660
 ggagctgcaa agtggagctg tt 682

<210> 49
 <211> 633
 <212> DNA
 <213> Homo sapiens

<400> 49
 cctgccacat cagcgtttat catcttcctg agtctctgag ggagacagca ctggaactca 60
 ggatttggct cacctgtgac aaaggaaatg cgaggaggta acaaggcact gcaagaagga 120
 agcatagtac aaggattctg aatcactttg ttcaaaattg gatataagat aaataacagt 180
 attttaagat gtttgctaaa aatcaagtaa atgcaaacag aataattgat gagatgccat 240
 tatcactttc aaaatggcat cgattaaaaa aataagcact cagaagggtg gtgagtgggc 300
 aacagaaggg acgtgtgccc accccacagc gggatgttga gttagcccct ggctttagaa 360
 ggcagtgggc agggagccgc agaggaggca tgtgtgcaga gctacgtctc ggatctagtc 420
 tgcgggcatt accagagatg tgtccagaga gttctacaga gagctgtctg ttacatgagg 480
 gaaactatga tgtgaagttt ttaaaagtcc aaaaataaga agtggatcag ataaataatg 540
 gcacatctga gtcgtataaa ctatgaaatc accaaagtct tgtttaataa aactaatacc 600
 tgggggtaaa gcaacttata agacaatagg cct 633

<210> 50
 <211> 446
 <212> DNA
 <213> Homo sapiens

<400> 50
 tctcccttct ccctcaaacc ggatccagcc ctctgcacc ccggcctgtg tgcagccgca 60
 gggagaggag taagccagcc tctcgcgtgc ggtgctctct gcatagggtt agtggtggg 120
 accaacacgc gagctggcgc tttccgtgcg agcccagcat caggcggagg cccagggcca 180
 accggactct gaacaaaggg agccgacaaa tgagaaagca aaggtacctc agagactacg 240
 aagcccttca gatggaaatg gtcactctcc aacagcctct ctggacctct gcctgcaagc 300
 ccggcccaca catcttggac ccaggctgga gacacagaca gccagggtgg gatgcccacg 360
 cgcagctcca agaccccggg gagcctccgc caggccggaa cctgcgccag gcttctctgg 420
 aaccttctct ccaggacgct cttctg 446

<210> 51
 <211> 638
 <212> DNA
 <213> Homo sapiens

<400> 51
 taatttctccc atttatccat tcaataagtt gtcactgaca tctacataat gacaggacag 60
 gcgtggctcc agggagctta gggcaagtg ggtctgacct gaaaatctac ataaactctg 120
 tcttctactc cataatatat tgatgcttct tttaataata aatttttctt tctccatcca 180
 ttgcaaata aaattagtc cccaggaaga taagtcagac ttctctgtgg cttctcaagt 240
 gccagctggg catgagcatc tcagactgag acgcctggac aacctcctgt tcaaattgtg 300
 ctttgtcata gaattggagc accctgaggg caggatgaca cccatctgga gtaagggact 360
 ccagcatgac caccacaat ggcagatgtg cctacctggc aaccacgccc atcccacccc 420
 acactgcttc tctgcccaca cagcccaat ctgttcagac agccagtgga ggtaggacca 480
 tctcctgcct cggggcatga atcattgctg ggctggggca gtcaaacagc ctcacctgcc 540
 ctggctgact ctggccaatg agatggaagg ggaagtggc ttgggagcag gtgggaatat 600
 cctctcaaac aaagagcttt cagctcctcc tcccttgc 638

<210> 52
 <211> 707
 <212> DNA
 <213> Homo sapiens

<400> 52
 tttatttttt ccagggcggg ggagttgaag taggaagaag agtaatgaag aatgtgtttg 60
 ccttaaaagc ataagcagag ttatttttaa tgtaagtgcc ctcccccttt tgtaatgcca 120
 ggggcagagt atttccaaa tgccttatac acttactttc agcactaaat gtatttgtgc 180
 aaatcccatg aatcatcaag gcttttgaaa atatttatag ggagagaaac tcaacccttt 240

```

tcattagagt gagtaaaact cacactggta tcttgctatt gtttaaggag aacaatggat 300
gggtggatga aagagaatgt cagctggatc aacaaacagc tgttccaaca gaagtcctgc 360
tatcctatac aataaagcag tattaattgc tgccttccct ggagtctcta aagatactcg 420
gtaagtgtac agtaccctga tgaactaaag ccaaaagtta gggctgattt cgggcttcat 480
cacagtgaac acctcacctc cagagagaaa gttgtaggcc tttaaagctt ttgatctcag 540
agaagactcc accgcctttc aaggcaataa attcttgcct cttctccaaa tactctaact 600
gaaacttctg ctgttgagcgt ataattcaat gtgttttttt ccagacttca atgaaagcaa 660
gaattctcat tctgcatgta attatatccc ttataatacc cacagcc 707

```

```

<210> 53
<211> 654
<212> DNA
<213> Homo sapiens

```

```

<400> 53
tatgagtgat gcaaatatca caaatactgg tggcaccaaa acgatgattt ttctgaaatc 60
tgaaataaac ttggtaaaat ttcatttgaa acaaaagtct ctttcaatt tattaagtac 120
agcgagtgtc cacctaaggt cttggaaatg gcaacttta gtaaaataat gtatattaaa 180
accaattttc ccataagcta attgatctaa acaagagtta tgcttttatg gcatatttct 240
ggtcacaaaa acatcaccaa acttctaaag aaagaccaa atatttctga tattaacat 300
ttaaagaaat gtgagctata cgtacattta agaaaggta ataaaaacaa gtcagataat 360
tattttacca attattccag ttcaggatac tgggtagcca aagcttatct gggcagctta 420
ggatgcaagg aaggaactca ccttgaacag gaaaccaatt ccatcacagg gcacattcac 480
acacagaccc aactcactt cagaccagga aaattttaa accaattcac ctactatgca 540
catctttgga atgtgggatg aagccagcgt acctggagaa aaccaggaa gacatgggga 600
gaatgggcaa actccacaca gacagaggcc ctagtgaagt atcattatta ttct 654

```

```

<210> 54
<211> 775
<212> DNA
<213> Homo sapiens

```

```

<400> 54
cccaatatgg atgcaagggt cactgattac tttagggtcc ttatgttgca aggagtctag 60
gaaaaacttc aatttttttt ttttacagca acgtgattct ctttgtggtg tctactaaaa 120
taagaaagtt acagtgagat ttcttcagtg ttctgatggc tttctgcctc tcctctgacc 180
agcgtgagcc actccttcat ctctgcctct cactttctgc ttgacagtca aggctcgcct 240
tgaacctccc tcttcagaaa gcctttctga cctgcctcct caggagtgtt tgtttgggt 300
atgtgaccac aatctgcact atactaatta gctatgattt ttatggggct ggaggaactt 360
ctaaggcagc agccgcgtcg ggttcttctg tctccttccc agggcttcct cagggttag 420

```

```

tacagggcat gtgctaagca ttccttagcc ccttcctttg cccttgtttg ttctttctaa 480
tcagattctg tgggggaagt tcattgtcac aatgtccaat gtttagcatt caaaggctgc 540
atgaggtaga tcaggtaaac atacctctct ggctgtacca aaatgggggg gtttggcata 600
tccgccacct gaaagcagct ggaccctgcg tggatctggg tttgtatgct gtgagtaatg 660
ctgtctgcat cttcgaatct ttcactgtaa gaaacaaaag tctgacagcc tctgaatccc 720
gccctccttc ctgatacact gtgacaatgt gtttatagta ccctgttgat gctga 775

```

```

<210> 55
<211> 224
<212> DNA
<213> Homo sapiens

```

```

<400> 55
aaaaaaaaaa aaaaaaaggt gactgatatt accaaatagc ctccatgatg taccaattta 60
cactgcttat aggtttgtct gttttcttga tattatacac tctgtcttac agactcacag 120
caacatgtct tggaattcca cttatgtcaa tatacataga tctaccttat taaaaaaaaa 180
aaacatgccg ggcatagggg cttacacctg taatcccagc actt 224

```

```

<210> 56
<211> 465
<212> DNA
<213> Homo sapiens

```

```

<400> 56
caccatcctc cagaccccag aatggtagat ccatccaagc ttgcacctg cacctgggaa 60
aagccatagg acactcaaca tcagccatga aggagcccg gaagggggct atgccctgca 120
aagccacagg ggaggagcta cccaaggcca tgggagccca cctcttgcat cagtgtgacc 180
tggacgtgaa acatggagtc caaggagatc attttggagc tttaagattt ggctgctcca 240
ctggatttca gatttgcatt gggcctgtag cctctttgtt ttggctaatt tctcctattt 300
ggaatggttg tatttcccca atgcctgtac tcccattgta tctaggaagt ataataggta 360
cgtgcttttg attgtaaagg cttataggca aaagggactt gccttgctc agatgagact 420
ttgaactcag actgttgagt taatgctgga atgagttaag atttt 465

```

```

<210> 57
<211> 621
<212> DNA
<213> Homo sapiens

```

```

<400> 57
cgcttgatg gacaggttac cactggagtg ctacggctct gatacctgca gttttgcaga 60
accagcctgc aatggcgagg ccggggcctt tggtttagca cagaggtgag agtgtgcggc 120
ccactctgag gggcagcggg acctatgtcc tcccccttcc tcccactgca gactcccagg 180
gcctggagat ggtgactgga acaaatgaca catttcagcc acacaaggag gcctctgtga 240
ggccgcttct tccagcagaa gctcctgtgg atgtgcatgt gtcagaacaa acccagccca 300

```

```

ggaccgaatg gatttgggtt atttgctttt caattctggc cccattctgt gggaggccat 360
ctgtgatgag gcagggaaaa gcagacagag aaaggggatc catgctcttg catccagccc 420
ttccaagaaa attctatgag agcagcacct gaaccgcaag gcccgttg gacagcagat 480
tgtatttttag gattttaacc acaaatcatc tctcctgact tctcattctc tgccctgcaa 540
catttctttc tcatttcttc cacctagaat ctctctatct ctacttgacc tttgcttttg 600
gatgtggcca ctcaaacctt t 621

```

```

<210> 58
<211> 24
<212> PRT
<213> Homo sapiens

```

```
<400> 58
```

```

Trp Asn Leu Glu Asp Asn Gly Gly Ile Asn Ala Phe Lys Ile Pro Ser
1          5          10          15

```

```

Glu Asn Tyr Phe Gln Pro Arg Ile
20

```

```

<210> 59
<211> 27
<212> PRT
<213> Homo sapiens

```

```
<400> 59
```

```

Pro Ala Thr Ser Ser Ser Gln Leu Ile Ser Ile Glu Thr Glu Leu Ser
1          5          10          15

```

```

Leu Ala Gln Cys Ile Ser Val Val Ser Ala Glu
20          25

```

```

<210> 60
<211> 63
<212> PRT
<213> Homo sapiens

```

```
<400> 60
```

```

Thr Cys Ile Phe Leu Pro Val Leu Lys Leu Asn His Leu Phe Val Leu
1          5          10          15

```

```

Ile Phe Val Ser Leu Ser Pro Cys Pro Gln Pro Val Ala Thr Thr Ile
20          25          30

```

```

Leu Leu Ser Val Ser Met Asn Leu Thr Thr Leu His Thr Ser Tyr Lys
35          40          45

```

```

Trp Arg His Thr Val Phe Tyr Gly Phe Leu Glu Ala Gly Ile Phe
50          55          60

```

```

<210> 61
<211> 64
<212> PRT
<213> Homo sapiens

```

```
<400> 61
```

```

Thr Ile Gly Gly Thr Leu Leu Gly Leu Ser Phe Leu Ile Cys Lys Ala
1          5          10          15

```

Leu Val Ile Leu Glu Ser Ser Ser His Phe Phe Val Asp Arg Arg Arg
 20 25 30

Gly Ser Gly Lys Lys Ala Tyr Ala Asn Lys Gln Pro Gln Gly Lys Pro
 35 40 45

Ala Ala Gly Ala Leu Pro Ser Trp Leu Arg Lys Leu Pro Leu Gly Arg
 50 55 60

<210> 62
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 62

Trp Lys Asn Trp Leu Phe Phe Thr Cys Leu His Cys Thr Thr Pro His
 1 5 10 15

Asp Val Met Phe His Ile Leu Leu Lys Ile Pro Glu Phe His Glu Val
 20 25 30

Leu Gly Thr Cys His Ile Leu Gln Gly Leu Asn Lys Ile Val Phe Thr
 35 40 45

Leu Pro
 50

<210> 63
 <211> 36
 <212> PRT
 <213> Homo sapiens

<400> 63

Thr Trp Thr Pro Asp Gly Glu Ser Val Leu Arg Asp Pro Glu Gly Trp
 1 5 10 15

Glu His Trp Thr Pro Asp Gly Glu Ser Val Leu Arg Asp Pro Glu Gly
 20 25 30

Trp Glu His Trp
 35

<210> 64
 <211> 45
 <212> PRT
 <213> Homo sapiens

<400> 64

Arg Gln Glu Ala Leu Leu His His Val Ala Thr Ile Ala Asn Thr Phe
 1 5 10 15

Arg Ser His Arg Ala Ala Gln Arg Cys His Glu Asp Trp Lys Arg Leu
 20 25 30

Ala Arg Val Met Asp Arg Phe Phe Leu Ala Ile Phe Phe
 35 40 45

<210> 65
 <211> 24
 <212> PRT
 <213> Homo sapiens

<400> 65

His Cys Gln Leu Ser Pro Leu Pro Pro Gly Ile Phe Ser Ile Ser Cys
 1 5 10 15

Trp Leu Ser Lys Arg Trp Arg Pro
 20

<210> 66
 <211> 36
 <212> PRT
 <213> Homo sapiens

<400> 66

Gln Ser Trp Leu Asp Thr Arg Leu Ala Trp Asn Thr Ser Ala His Pro
 1 5 10 15

Arg His Ala Ile Thr Leu Pro Trp Glu Ser Leu Trp Thr Pro Arg Leu
 20 25 30

Thr Ile Leu Glu
 35

<210> 67
 <211> 24
 <212> PRT
 <213> Homo sapiens

<400> 67

Trp Asn Leu Glu Asp Asn Gly Gly Ile Asn Ala Phe Lys Ile Pro Ser
 1 5 10 15

Glu Asn Tyr Phe Gln Pro Arg Ile
 20

<210> 68
 <211> 38
 <212> PRT
 <213> Homo sapiens

<400> 68

Cys Leu Ser Leu Met Val Gly Ser Leu Leu Glu Thr Ile Phe Ile Thr
 1 5 10 15

His Leu Leu His Val Ala Thr Thr Gln Pro Pro Pro Leu Pro Arg Trp
 20 25 30

Leu His Ser Leu Leu Leu
 35

<210> 69
 <211> 89
 <212> PRT
 <213> Homo sapiens

<400> 69

Gly Glu Thr Asp Val Ile Tyr Leu Leu Ile Ile Cys Arg Lys Ile Thr
 1 5 10 15

Asn Ile Met Val Pro Cys Val Leu Ile Ser Gly Leu Val Leu Leu Ala
 20 25 30

Tyr Phe Leu Pro Ala Gln Ser Leu Gly Thr Ala Ala Pro Glu Ile Arg
 35 40 45

Cys Cys Gly Asp Ala Val Asn Phe Val Ala Lys Asn Met Arg Gly Gln
 50 55 60

Asp Thr Arg Gly Gln Asp Asp Gly Ile Cys Phe Trp Val Ala Arg Val
 65 70 75 80

Leu Phe Ser Leu Gly Ser Asn Leu Ile
 85

<210> 70
 <211> 29
 <212> PRT
 <213> Homo sapiens
 <400> 70

Asp Ser Thr Lys Ala Arg Pro Gln Lys Tyr Glu Gln Leu Leu His Ile
 1 5 10 15

Glu Asp Asn Asp Phe Ala Met Arg Pro Gly Phe Gly Gly
 20 25

<210> 71
 <211> 40
 <212> PRT
 <213> Homo sapiens
 <400> 71

Pro Asp Phe Arg Thr Asp Ser Phe Ser Val Arg Pro Thr Gln Ile Pro
 1 5 10 15

Val Gly Asn Leu Pro Phe Pro Cys Ala Thr Glu Cys Lys Glu Asn Ser
 20 25 30

Pro Lys Thr Ser Leu Thr Thr Leu
 35 40

<210> 72
 <211> 50
 <212> PRT
 <213> Homo sapiens
 <400> 72

Gly Asp Cys Arg Met Ala His Ala Glu Gln Lys Leu Met Asp Asp Leu
 1 5 10 15

Leu Asn Lys Thr Cys Tyr Asn Asn Leu Ile Arg Pro Ala Thr Ser Ser
 20 25 30

Ser Gln Leu Ile Ser Ile Gln Thr Ala Leu Ser Leu Ala Gln Cys Ile
 35 40 45

Ser Val
 50

<210> 73
 <211> 43
 <212> PRT
 <213> Homo sapiens
 <400> 73

Ala Glu Gln Lys Leu Met Asp Asp Leu Leu Asn Lys Thr Arg Tyr His
 1 5 10 15

Asn Leu Ile Arg Pro Ala Ala Ser Ser Ser Gln Leu Ile Ser Ile Glu
 20 25 30

Met Glu Leu Ser Leu Ala Gln Cys Ile Ser Val
 35 40

<210> 74
 <211> 51
 <212> PRT
 <213> Homo sapiens

<400> 74

Arg Gly Thr Ala Ala Trp Pro Met Pro Ser Arg Lys Leu Met Asp Asp
 1 5 10 15

Leu Leu Asn Lys Thr Cys Tyr Asn Asn Leu Ile Arg Pro Ala Thr Ser
 20 25 30

Ser Ser Gln Leu Ile Ser Ile Gln Thr Ala Leu Ser Leu Ala Gln Cys
 35 40 45

Ile Ser Val
 50

<210> 75
 <211> 45
 <212> PRT
 <213> Homo sapiens

<400> 75

Gly Lys Phe Thr Cys Ile Glu Val Lys Phe His Leu Glu Arg Gln Met
 1 5 10 15

Gly Tyr Tyr Leu Ile Gln Met Tyr Ile Pro Ser Leu Leu Ile Val Ile
 20 25 30

Leu Ser Trp Val Ser Leu Trp Ile Asn Met Asp Ala Ala
 35 40 45

<210> 76
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 76

Val Ser Tyr Val Lys Ala Ile Asp Ile Trp Met Ala Val Cys Leu Leu
 1 5 10 15

Phe Val Phe Ala Ala Leu Leu Glu Tyr Ala Ala Ile Asn Phe Val Ser
 20 25 30

Arg Gln His Lys Glu Phe Ile Arg Leu Arg Arg Arg Gln Arg Arg Gln
 35 40 45

Arg Leu
 50

<210> 77
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 77

Arg Leu Thr Leu Ile Leu Ser Cys Leu Met Asp Leu Lys Asn Phe Pro
1 5 10 15

Met Asp Ile Gln Thr Cys Thr Met Gln Leu Glu Ser
20 25

<210> 78
<211> 72
<212> PRT
<213> Homo sapiens

<400> 78

Ile Ser Leu Ser Ala Val Phe Leu Arg Gly Ser Leu Leu Lys Leu Trp
1 5 10 15

Leu Phe Ser Thr Gly Trp Tyr Asn Arg Leu Phe Ile Asn Phe Val Leu
20 25 30

Arg Arg His Val Phe Phe Phe Val Leu Gln Thr Tyr Phe Pro Ala Ile
35 40 45

Leu Met Val Met Leu Ser Trp Val Ser Phe Trp Ile Asp Arg Arg Ala
50 55 60

Val Pro Ala Arg Val Ser Leu Gly
65 70

<210> 79
<211> 159
<212> PRT
<213> Homo sapiens

<400> 79

Arg Cys Arg Pro Ser Pro Tyr Val Val Asn Phe Leu Val Pro Ser Gly
1 5 10 15

Ile Leu Ile Ala Ile Asp Ala Leu Ser Phe Tyr Leu Pro Leu Glu Ser
20 25 30

Gly Asn Cys Ala Pro Phe Lys Met Thr Val Leu Leu Gly Tyr Ser Val
35 40 45

Phe Leu Leu Met Met Asn Asp Leu Leu Pro Ala Thr Ser Thr Ser Ser
50 55 60

His Ala Ser Leu Val Arg Pro His Pro Ser Arg Asp Gln Lys Arg Gly
65 70 75 80

Val Cys Trp Met Gly Arg Gly Met Gly Arg Thr Arg Arg Ser Glu Lys
85 90 95

Gly Ser Trp Lys Lys Ile Leu Trp Glu Arg Asn Lys Lys Phe Val Ala
100 105 110

Pro Leu Ala Leu Met Gln Thr Pro Leu Pro Ala Gly Val Tyr Phe Ala
115 120 125

Leu Cys Leu Ser Leu Met Val Gly Ser Leu Leu Glu Thr Ile Phe Ile
130 135 140

Thr His Leu Leu Ala Arg Gly His His Pro Ala Pro Thr Ser Ala
145 150 155

<210> 80

<211> 60
 <212> PRT
 <213> Homo sapiens

<400> 80

Leu Ser Ser Ser Met Asp Val Asp Lys Thr Pro Lys Gly Leu Thr Ala
 1 5 10 15
 Tyr Val Ser Asn Glu Gly Arg Ile Arg Tyr Lys Lys Pro Met Lys Gly
 20 25 30
 Asp Ser Ile Cys Asn Leu Asp Ile Phe Tyr Phe Pro Phe Asp Gln Gln
 35 40 45
 Asn Cys Thr Leu Thr Phe Ser Ser Phe Leu Tyr Thr
 50 55 60

<210> 81
 <211> 33
 <212> PRT
 <213> Homo sapiens

<400> 81

Gln Glu Trp Ser Asp Tyr Lys Leu Arg Trp Asn Pro Thr Asp Phe Gly
 1 5 10 15
 Asn Ile Thr Ser Leu Lys Val Pro Ser Glu Met Ile Trp Ile Pro Asp
 20 25 30
 Ile

<210> 82
 <211> 58
 <212> PRT
 <213> Homo sapiens

<400> 82

Cys Pro Gly Val Ile Arg Arg His His Gly Gly Ala Thr Asp Gly Pro
 1 5 10 15
 Arg Glu Thr Asp Val Ile Tyr Ser Leu Ile Ile Leu Arg Lys Pro Leu
 20 25 30
 Phe Tyr Val Ile Asn Ile Ile Val Pro Cys Val Leu Ile Trp Gly Leu
 35 40 45
 Val Leu Leu Ala Tyr Phe Leu Pro Ala Gln
 50 55

<210> 83
 <211> 43
 <212> PRT
 <213> Homo sapiens

<400> 83

Arg Phe Leu Ile Phe Val Met Val Val Ala Thr Leu Ile Val Met Asn
 1 5 10 15
 Cys Val Ile Val Leu Asn Val Ser Gln Arg Thr Pro Thr Thr His Ala
 20 25 30
 Met Ser Pro Arg Leu Arg His Val Ser Ala Glu

35

40

<210> 84
 <211> 92
 <212> PRT
 <213> Homo sapiens

<400> 84

His Pro Asp Ser Lys Tyr His Leu Lys Lys Arg Ile Thr Ser Leu Ser
 1 5 10 15
 Leu Pro Ile Val Ser Ser Ser Glu Ala Asn Lys Val Leu Thr Arg Ala
 20 25 30
 Pro Ile Leu Gln Ser Thr Pro Val Thr Pro Pro Pro Leu Ser Pro Ala
 35 40 45
 Phe Gly Gly Thr Ser Lys Ile Asp Gln Tyr Ser Arg Ile Leu Phe Pro
 50 55 60
 Val Ala Phe Ala Gly Phe Asn Leu Val Tyr Trp Gly Ser Phe Ile Phe
 65 70 75 80

Pro Lys Ile Gln Trp Glu Val Ser Thr Ser Val Glu
 85 90

<210> 85
 <211> 61
 <212> PRT
 <213> Homo sapiens

<400> 85

Arg Ser Val Gly Val Glu Thr Gly Glu Thr Lys Lys Glu Gly Ala Ala
 1 5 10 15
 Arg Ser Gly Gly Gln Gly Gly Ile Arg Ala Arg Leu Arg Pro Met Asp
 20 25 30
 Ala Asp Thr Ile Asp Ile Asn Ala Arg Ala Val Phe Pro Ala Ala Phe
 35 40 45
 Ala Ala Val Asn Val Ile Tyr Trp Ala Ala Tyr Ala Met
 50 55 60

<210> 86
 <211> 132
 <212> PRT
 <213> Homo sapiens

<400> 86

Asn Cys Cys Glu Glu Ile Tyr Thr Asp Ile Thr Tyr Ser Phe Tyr Ile
 1 5 10 15
 Ile Arg Leu Pro Met Phe Tyr Thr Ile Asn Leu Ile Ile Pro Cys Leu
 20 25 30
 Phe Ile Ser Phe Leu Thr Val Leu Val Phe Tyr Leu Pro Ser Asp Cys
 35 40 45
 Gly Glu Lys Val Thr Leu Cys Ile Ser Val Leu Leu Ser Leu Thr Val
 50 55 60
 Phe Leu Leu Val Ile Thr Thr Ile Pro Ser Thr Ser Leu Val Gly Pro
 65 70 75 80

Leu Val Gly Glu Tyr Leu Leu Phe Thr Met Ile Phe Gly Thr Leu Ala
 85 90 95

Ile Val Val Thr Val Phe Glu Leu Asn Ile His Tyr Arg Thr Pro Thr
 100 105 110

Thr His Thr Met Pro Arg Trp Val Lys Thr Val Phe Leu Lys Leu Leu
 115 120 125

Pro Gln Val Leu
 130

<210> 87
 <211> 70
 <212> PRT
 <213> Homo sapiens

<400> 87

Ser Pro Thr His Asp Glu His Leu Leu His Gly Gly Gln Pro Pro Glu
 1 5 10 15

Gly Asp Pro Asp Leu Ala Lys Ile Leu Glu Glu Val Arg Tyr Ile Ala
 20 25 30

Asn Arg Phe Arg Cys Gln Asp Glu Ser Glu Ala Val Cys Asn Glu Trp
 35 40 45

Lys Phe Pro Ala Cys Val Val Asp Arg Leu Cys Leu Met Ala Phe Ser
 50 55 60

Val Phe Thr Ile Ile Cys
 65 70

<210> 88
 <211> 42
 <212> PRT
 <213> Homo sapiens

<400> 88

Glu Ile Thr Asp Thr Ser Arg Lys Val Ile Gln Thr Gln Gly Glu Trp
 1 5 10 15

Glu Leu Leu Gly Ile Asn Lys Ala Thr Pro Lys Met Ser Met Gly Asn
 20 25 30

Asn Leu Tyr Asp Gln Ile Met Phe Tyr Val
 35 40

<210> 89
 <211> 38
 <212> PRT
 <213> Homo sapiens

<400> 89

Asp Leu Ser Cys Leu Leu Ile Cys Ser Ile Ile Ala Cys Leu Tyr Asn
 1 5 10 15

Ile Asn Ile Ile Leu Pro Cys Leu Leu Arg Ser Leu Met Lys Val Ile
 20 25 30

Leu Phe Ile Leu Ala Ser
 35

<210> 90
 <211> 60
 <212> PRT
 <213> Homo sapiens

<400> 90

Phe Phe Ile Leu Leu Glu Asp Phe Ser Val Ser Ser Glu His Gly Leu
 1 5 10 15
 Ile Leu Gly Lys His Ser Ser Arg Ser Phe Met Pro Arg Phe Cys Ser
 20 25 30
 Phe Ile Cys Arg Leu Leu Pro Pro Cys His Phe Leu Pro Pro Pro Asn
 35 40 45
 Cys Glu Thr Ala Phe Ser Phe Leu Lys His Leu Trp
 50 55 60

<210> 91
 <211> 37
 <212> PRT
 <213> Homo sapiens

<400> 91

Gly Tyr Phe Leu Ser Leu Asp Cys Leu Ser Pro Asn Ile Phe Ile Ala
 1 5 10 15
 Ile Ser Leu Thr Phe Ile Ser Tyr Ser Cys Val Ser Tyr Ser Val Glu
 20 25 30
 Asn Leu Tyr Ser Pro
 35

<210> 92
 <211> 30
 <212> PRT
 <213> Homo sapiens

<400> 92

Phe Leu Asp Lys Val Leu Leu Glu His Ser His Asp His Ser Phe Met
 1 5 10 15
 Ala Ala Phe His Cys Asn Gly Gly Ile Glu Asp Ser Gly His
 20 25 30

<210> 93
 <211> 29
 <212> PRT
 <213> Homo sapiens

<400> 93

Ser Pro Gly Leu Ile Ser Val Ala Leu Phe Ser Ser Phe Gly Glu Val
 1 5 10 15
 Met Phe Ser Trp Met Ile Leu Ile Leu Val Asn Val Cys
 20 25

<210> 94
 <211> 31
 <212> PRT
 <213> Homo sapiens

<400> 94

Leu Ser Lys Glu Glu Thr Val Asp Asn Gly Glu Tyr Leu Leu Val Ser
1 5 10 15

Ala Thr Pro Leu Lys Met Glu Tyr Thr Asn Ser His Cys Asp Phe
20 25 30

<210> 95
<211> 18
<212> PRT
<213> Homo sapiens

<400> 95

Trp Cys His Phe Ile Phe Tyr His Cys Ser Pro Asn Ser Pro Tyr Ile
1 5 10 15

Ser Leu

<210> 96
<211> 44
<212> PRT
<213> Homo sapiens

<400> 96

Ile Phe Asn Phe Lys Phe Phe Pro Leu Gln Asn Gln Lys Ile Ser Glu
1 5 10 15

Thr Tyr Val Ala Ala Leu Tyr Asn Glu Val Glu His Ser Leu Glu Phe
20 25 30

Arg Gln Ile Glu Leu Glu Asp Lys Thr Glu Leu Ser
35 40

<210> 97
<211> 43
<212> PRT
<213> Homo sapiens

<400> 97

Phe Leu Cys Ser Tyr Ser Cys Ser Pro Gln Leu His Ile Thr Ser Gly
1 5 10 15

Asp Val Phe Trp Thr Ser Pro Gln Asp Gly Met Ile Gly Ser Gly Cys
20 25 30

Ser Tyr Ile Pro Phe Ser Trp Val Arg Cys Ser
35 40

<210> 98
<211> 93
<212> PRT
<213> Homo sapiens

<400> 98

Gly His Ser Cys Ser Cys Pro Thr Val Ala Pro Asp Leu Gly Ile Ser
1 5 10 15

Ala Leu Leu Gly Ala Gln Glu Val Pro Cys Pro His Trp Leu Arg Ile
20 25 30

Gly Cys Ser Cys Pro Trp Ala Val Pro Ala Pro Val Gln Ser Glu Val
35 40 45

Val Ala Lys Pro Arg Cys Tyr His Ser Leu Ala Arg Cys Ala Phe Ile
50 55 60

Trp Gly Val Leu Thr His Gln Pro Pro Ala Thr Ser Ala Leu Ser Gly
65 70 75 80

Leu Trp Ala Thr Thr Ser Met Arg Gly Arg Pro Gly Gly
85 90

<210> 99
<211> 67
<212> PRT
<213> Homo sapiens

<400> 99

Tyr Leu Arg Leu Ala Gln Ser Pro Arg Glu Ser Ser Glu Leu Glu Leu
1 5 10 15

Glu Gly Ser Thr Trp Glu Arg Thr Arg Arg Gln Arg Ser Gly Ala Glu
20 25 30

Ala Trp Glu Gln Thr His Gly Pro Arg His Pro Arg Ala Pro Pro Leu
35 40 45

Tyr Pro Ala Arg Pro Ser Ser Leu Ala Pro Gly Cys Thr Ala Pro Ala
50 55 60

Arg Ala Arg
65

<210> 100
<211> 32
<212> PRT
<213> Homo sapiens

<400> 100

Pro Ala Val Phe His Lys Tyr Tyr Ala Ser Phe Ile Val Val Tyr Phe
1 5 10 15

Pro Phe Glu Glu Asn Asn Met Ser Phe Ala Ser Pro Pro Lys Thr His
20 25 30

<210> 101
<211> 20
<212> PRT
<213> Homo sapiens

<400> 101

Cys Thr Trp Ile Glu Pro Ser Ser Asp Met Pro Gln Phe Thr Leu Leu
1 5 10 15

Asn Thr Ser Trp
20

<210> 102
<211> 43
<212> PRT
<213> Homo sapiens

<400> 102

Pro Gly Lys Ala Gln Arg Ser Asp Gly Asp Leu Ala Ser Cys Pro Arg
1 5 10 15

Ser Ala Pro Pro Pro Pro Ile Ser Gly Phe Ser Leu His Thr Asn Gln
 20 25 30

Ala Glu Asn Ser Pro Leu Pro Thr Thr Pro His
 35 40

<210> 103
 <211> 66
 <212> PRT
 <213> Homo sapiens

<400> 103

Pro Pro Tyr Gln Val Leu Tyr Pro Gly Leu Phe Arg Phe Phe Ser Pro
 1 5 10 15

Ile Ser Val Leu Pro Gly Leu Ser Tyr Arg Val Asp Cys Cys Pro Ser
 20 25 30

Ser Leu Gly Ala Pro Gln Glu Leu Gln Asn Tyr Ser Ser Leu Thr Pro
 35 40 45

Tyr Ser Gln Leu Tyr Met Thr Thr Asn Asp His Ser Leu Lys Gln Asn
 50 55 60

Arg Gln
 65

<210> 104
 <211> 28
 <212> PRT
 <213> Homo sapiens

<400> 104

Pro Glu Gln Glu Asn Phe Thr His Ser Gly Asp Trp Glu Arg Val Glu
 1 5 10 15

Ala Arg Thr Trp Lys Glu Ala Thr Tyr Ser Arg Cys
 20 25

<210> 105
 <211> 90
 <212> PRT
 <213> Homo sapiens

<400> 105

Ser Ala Phe Pro Thr Glu Val Thr Ser Ser Ser His Trp Asp Trp Leu
 1 5 10 15

Asp Thr Gly Cys Ser Pro Gln Arg Ala Ser Gly Ser Arg Val Glu Cys
 20 25 30

His Val Pro Trp Glu Gly Gln Gly Val Arg Glu Leu Pro Pro Leu Ala
 35 40 45

Lys Arg Ser Pro Glu Gly Leu Cys His Glu Glu Gln Cys Ile Pro Ala
 50 55 60

Gln Ile Leu Pro Phe Ser His Gly Leu His Asn Pro Gln Thr Ser Arg
 65 70 75 80

Phe Pro Gln Val Pro Thr Pro Pro Gly Thr
 85 90

<210> 106
 <211> 37
 <212> PRT
 <213> Homo sapiens

<400> 106

Trp His Leu Ile Asn Tyr Ser Val Cys Ile Tyr Leu Ile Phe Ser Lys
 1 5 10 15
 His Leu Lys Ile Leu Leu Phe Thr Leu Tyr Pro Ile Leu Asn Lys Val
 20 25 30
 Ile Gln Asn Pro Cys
 35

<210> 107
 <211> 34
 <212> PRT
 <213> Homo sapiens

<400> 107

Arg Lys Ala Pro Ala Arg Val Leu Val Pro Thr Thr Lys Pro Met Gln
 1 5 10 15
 Arg Ala Pro His Ala Arg Gly Trp Leu Thr Pro Leu Pro Ala Ala Ala
 20 25 30
 His Arg

<210> 108
 <211> 68
 <212> PRT
 <213> Homo sapiens

<400> 108

Phe Val Ile Glu Leu Glu His Pro Glu Gly Arg Met Thr Pro Ile Trp
 1 5 10 15
 Ser Lys Gly Leu Gln His Asp His Pro Gln Trp Gln Met Cys Leu Pro
 20 25 30
 Gly Asn His Ala His Pro Thr Pro His Cys Phe Ser Ala His Thr Ala
 35 40 45
 Pro Ile Cys Ser Asp Ser Gln Trp Arg Asp His Leu Leu Pro Arg Gly
 50 55 60
 Met Asn His Cys
 65

<210> 109
 <211> 36
 <212> PRT
 <213> Homo sapiens

<400> 109

Leu Leu Phe Lys Glu Asn Asn Gly Trp Val Asp Glu Arg Glu Cys Gln
 1 5 10 15
 Leu Asp Gln Gln Thr Ala Val Pro Thr Glu Val Leu Leu Ser Tyr Thr
 20 25 30

Ile Lys Gln Tyr
35

<210> 110
<211> 41
<212> PRT
<213> Homo sapiens

<400> 110

Trp Asn Trp Phe Pro Val Gln Gly Glu Phe Leu Pro Cys Ile Leu Ser
1 5 10 15

Cys Pro Asp Lys Leu Trp Leu Pro Ser Ile Leu Asn Trp Asn Asn Trp
20 25 30

Val Asn Asn Tyr Leu Thr Cys Phe Tyr
35 40

<210> 111
<211> 53
<212> PRT
<213> Homo sapiens

<400> 111

Ile Gln Arg Leu His Glu Val Asp Gln Val Asn Ile Pro Leu Trp Leu
1 5 10 15

Tyr Gln Asn Gly Gly Val Trp His Ile Arg His Leu Lys Ala Ala Gly
20 25 30

Pro Cys Val Asp Leu Gly Leu Tyr Ala Val Ser Asn Ala Val Cys Ile
35 40 45

Phe Glu Ser Phe Thr
50

<210> 112
<211> 35
<212> PRT
<213> Homo sapiens

<400> 112

Tyr Gln Phe Thr Leu Leu Ile Gly Leu Ser Val Phe Leu Ile Leu Tyr
1 5 10 15

Thr Leu Ser Tyr Arg Leu Thr Ala Thr Cys Leu Gly Ile Pro Leu Met
20 25 30

Ser Ile Tyr
35

<210> 113
<211> 69
<212> PRT
<213> Homo sapiens

<400> 113

Ile Trp Leu Leu His Trp Ile Ser Asp Leu His Gly Ala Cys Ser Leu
1 5 10 15

Phe Val Leu Ala Asn Phe Ser Tyr Leu Glu Trp Leu Tyr Phe Pro Asn
20 25 30

Ala Cys Thr Pro Ile Val Ser Arg Lys Tyr Asn Arg Tyr Val Leu Leu
 35 40 45

Ile Val Lys Ala Tyr Arg Gln Lys Gly Leu Ala Leu Ser Gln Met Arg
 50 55 60

Leu Thr Gln Thr Val
 65

<210> 114
 <211> 60
 <212> PRT
 <213> Homo sapiens

<400> 114

Cys Lys Ser Met Asp Pro Leu Ser Leu Ser Ala Phe Pro Cys Leu Ile
 1 5 10 15

Thr Asp Gly Leu Pro Gln Asn Gly Ala Arg Ile Glu Lys Gln Ile Thr
 20 25 30

Gln Ile His Ser Val Leu Gly Trp Val Cys Ser Asp Thr Cys Thr Ser
 35 40 45

Thr Gly Ala Ser Ala Gly Arg Ser Gly Leu Thr Glu
 50 55 60

<210> 115
 <211> 2131
 <212> DNA
 <213> Homo sapiens

<400> 115

agcttttgcta cattaagcttc cagaatttgc attcaggctc accccatcct cccgggcctc 60
 ggaagaagaa gccagcgtc tggacccctc tcggtgatcc cctccccatt cttcatctca 120
 tccctgggga cgtatagcac agcagcagca gacaaacctg gggtcagaac aagtccggct 180
 tctgcctttt attggctgtc tgactgtagg aagttacttc ctcttattgc accttagtta 240
 gctcgtttat tacatgaggg taaagcagta tctacctgat aggggattgg gaggattaaa 300
 tgaggtaatc cttttttaa gggcttagaa tatacctgac acacagccag tgetcaacaa 360
 atgttagctt tcattttatc acgggcgacc ccacgccctg ccttggggcc cctctcatat 420
 agggagcaca gggttgctct cttcatctc acacattcga tgtccactac aggaaggggc 480
 gttactttca ccatcaattg ctacgggttt ggccagcacg gggcggatcc cactgctgtg 540
 aattcagtgt ttaatagaaa gcccttccgt ccggtcacca acatcagcgt cccacccaa 600
 gtcaacatct ccttcgcgat gtctgccatc ctagatgtga atgaacagct gcacctcttg 660
 tcatcattcc tgtggctgga aatggtttgg gataacccat ttatcagctg gaaccagag 720
 gaatgtgagg gcatcacgaa gatgagtatg gcagccaaga acctgtggct cccagacatt 780
 ttcatcattg aactcatgga tgtggataag accccaaaag gcctcacagc atatgtaagt 840
 aatgaaggtc gcatcaggta taagaaaccc atgaaggtgg acagtatctg taacctggac 900
 atcttctact tccccttcga ccagcagaac tgcacactca ctttcagctc attcctctac 960
 acagtggaca gcatgttgct ggacatggag aaagaagtgt gggaaataac agacgcattc 1020

```

cggaacatcc ttcagaccca tggagaatgg gagctcctgg gcctcagcaa ggccaccgca 1080
aagttgtcca ggggaggcaa cctgtatgat cagatcgtgt tctatgtggc catcaggcgc 1140
aggcccagcc tctatgtcat aaaccttctc gtgccagtg gctttctggt tgccatcgat 1200
gccctcagct tctacctgcc agtgaaaagt gggaatcgtg tccattcaa gataacgctc 1260
ctgctgggct acaacgtctt cctgctcatg atgagtgact tgctcccccac cagtggcacc 1320
cccccatcg gtgtctactt cgcctgtgc ctgtccctga tgggtgggcag cctgctggag 1380
accatcttca tcacccacct gctgcacgtg gccaccaccc agccccacc cctgcctcgg 1440
tggtccact ccctgctgct cactgcaac agcccgggga gatgctgtcc cactgcgccc 1500
cagaaggaaa ataaggggcc ggtctcacc cccaccacc tgcccgggtg gaaggagcca 1560
gaggtatcag cagggcagat gccgggcctt gcggaggcag agctgacagg gggctcagaa 1620
tggaacaagg cccagcggga acacagggcc cagaagcagc actcagtgga gctgtggtg 1680
cagttcagcc acgcgatgga cgccatgctc ttccgcctct acctgctctt catggcctcc 1740
tctatcatca cgtcatatg cctctggaac acctaggcag gtgctcacct gccaaactca 1800
gtctggagct tctcttgctt ccagggactg gccaggcttc cccctttcc tgagtaccaa 1860
ctatcatatc cccaaagatg actgagtctc tgctgtattc catgtatccc aatccggtcc 1920
tgctgatcaa ttccaatccc agacatttct cctgttcctt gcattttggt ggcttccttc 1980
agtcctacca tatggttcta ggtccctctt acgtcatctg catagcagac tatacctctt 2040
ctgcccgtg acttgcccaa taaataattc tgcaagaaaa aaaaaaaaaa aaaaaaaaaa 2100
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2131
<210> 116
<211> 471
<212> PRT
<213> Homo sapiens
<400> 116

```

```

Met Leu Ala Phe Ile Leu Ser Arg Ala Thr Pro Arg Pro Ala Leu Gly
1           5           10          15
Pro Leu Ser Tyr Arg Glu His Arg Val Ala Leu Leu His Leu Thr His
20          25          30
Ser Met Ser Thr Thr Gly Arg Gly Val Thr Phe Thr Ile Asn Cys Ser
35          40          45
Gly Phe Gly Gln His Gly Ala Asp Pro Thr Ala Val Asn Ser Val Phe
50          55          60
Asn Arg Lys Pro Phe Arg Pro Val Thr Asn Ile Ser Val Pro Thr Gln
65          70          75          80
Val Asn Ile Ser Phe Ala Met Ser Ala Ile Leu Asp Val Asn Glu Gln
85          90          95
Leu His Leu Leu Ser Ser Phe Leu Trp Leu Glu Met Val Trp Asp Asn
100         105         110

```

```

Pro Phe Ile Ser Trp Asn Pro Glu Glu Cys Glu Gly Ile Thr Lys Met
   115                               120               125

Ser Met Ala Ala Lys Asn Leu Trp Leu Pro Asp Ile Phe Ile Ile Glu
   130                               135               140

Leu Met Asp Val Asp Lys Thr Pro Lys Gly Leu Thr Ala Tyr Val Ser
   145                               150               155               160

Asn Glu Gly Arg Ile Arg Tyr Lys Lys Pro Met Lys Val Asp Ser Ile
   165                               170               175

Cys Asn Leu Asp Ile Phe Tyr Phe Pro Phe Asp Gln Gln Asn Cys Thr
   180                               185               190

Leu Thr Phe Ser Ser Phe Leu Tyr Thr Val Asp Ser Met Leu Leu Asp
   195                               200               205

Met Glu Lys Glu Val Trp Glu Ile Thr Asp Ala Ser Arg Asn Ile Leu
   210                               215               220

Gln Thr His Gly Glu Trp Glu Leu Leu Gly Leu Ser Lys Ala Thr Ala
   225                               230               235               240

Lys Leu Ser Arg Gly Gly Asn Leu Tyr Asp Gln Ile Val Phe Tyr Val
   245                               250               255

Ala Ile Arg Arg Arg Pro Ser Leu Tyr Val Ile Asn Leu Leu Val Pro
   260                               265               270

Ser Gly Phe Leu Val Ala Ile Asp Ala Leu Ser Phe Tyr Leu Pro Val
   275                               280               285

Lys Ser Gly Asn Arg Val Pro Phe Lys Ile Thr Leu Leu Leu Gly Tyr
   290                               295               300

Asn Val Phe Leu Leu Met Met Ser Asp Leu Leu Pro Thr Ser Gly Thr
   305                               310               315               320

Pro Leu Ile Gly Val Tyr Phe Ala Leu Cys Leu Ser Leu Met Val Gly
   325                               330               335

Ser Leu Leu Glu Thr Ile Phe Ile Thr His Leu Leu His Val Ala Thr
   340                               345               350

Thr Gln Pro Pro Pro Leu Pro Arg Trp Leu His Ser Leu Leu Leu His
   355                               360               365

Cys Asn Ser Pro Gly Arg Cys Cys Pro Thr Ala Pro Gln Lys Glu Asn
   370                               375               380

Lys Gly Pro Gly Leu Thr Pro Thr His Leu Pro Gly Val Lys Glu Pro
   385                               390               395               400

Glu Val Ser Ala Gly Gln Met Pro Gly Pro Ala Glu Ala Glu Leu Thr
   405                               410               415

Gly Gly Ser Glu Trp Thr Arg Ala Gln Arg Glu His Glu Ala Gln Lys
   420                               425               430

Gln His Ser Val Glu Leu Trp Leu Gln Phe Ser His Ala Met Asp Ala
   435                               440               445

Met Leu Phe Arg Leu Tyr Leu Leu Phe Met Ala Ser Ser Ile Ile Thr
   450                               455               460

```


Val Ile Cys Leu Trp Asn Thr
465 470

<210> 117
<211> 1465
<212> DNA
<213> Homo sapiens

<400> 117
atgttagctt tcattttatc acgggcgacc ccacgccctg ccttggggcc cctctcatat 60
agggagcaca ggggttgctct ccttcatctc acacattcga tgtccactac aggaaggggc 120
gttactttca ccatcaattg ctccagggttt ggccagcacg gggcggatcc cactgctctg 180
aattcagtggt ttaatagaaa gcccttcctg ccgggtcacca acatcagcgt cccaccccaa 240
gtcaacatct ccttcgcgat gtctgccatc ctatagatgtga atgaacagct gcacctcttg 300
tcatcattcc tgtggctgga aatgggttgg gataacccat ttatcagctg gaaccagat 360
gaatgcggag gcatcaagaa gtccggcatg gcaactgaga acctatggct ttcagatgtc 420
ttcatcgagg agtctgtgga tcagacacct gcagggtctca tggctagtat gtcaatagtg 480
aaggccacat caaacacaat aagccaatgt ggggtggtcag catctgcaaa ctggacacct 540
tctatttccc cttccatgga cagaggtgaa cgctctcctt cagccctttc acctacacag 600
gtaaccgggg catggagaag gatgtccagg agctttcaaa tacatcacag aacctattc 660
agaacaagga gggagtgggt actgctgggt atccaaaaaa gaacaataaa ggtgaccgtg 720
gccactaacc agtatgaaca agccatcttc catgtggcca tcaggcgagc gtgcaggccc 780
agcccctacg tggtaaaactt tctggtgccc agtggcattc tgattgccat cgatgccctc 840
agtttctacc tgccactgga aagtgggaat tgtgccccat tcaagatgac tgttctgctg 900
ggctacagcg tcttcctgct catgatgaat gacttgctcc cagccactag cacttcatca 960
catgcttcac tagtacgtgt ctacttcgcc ctgtgcctgt ccctgatggg gggcagcctg 1020
ctggagacca tcttcatcac ccacctgctg cacgtggcca ccaccagcc cctacctctg 1080
cctcgggtggc tccactccct gctgctgcac tgcaccggcc aaggagatg ctgtcccact 1140
gcgccccaga agggaaataa gggccgggt ctcaccccca cccacctgcc cgggtgtgaag 1200
gagccagagg tatcagcagg gcagatgcca ggccctgggg aggcagagct gacagggggc 1260
tcagaatgga caagggccca gcgggaacac gaggccaga agcagcactc ggtggagctg 1320
tgggtgcagt tcagccacgc gatggacgcc ctgctcttcc gcctctacct gctcttcatg 1380
gcctcctcca tcatcaccgt catatgcctc tggaacacct aggcaggtgc tcacctgcaa 1440
acttcagtct ggacttcttt ttgcc 1465

<210> 118
<211> 357
<212> PRT
<213> Homo sapiens

<400> 118

Trp Asn Pro Asp Glu Cys Gly Gly Ile Lys Lys Ser Gly Met Ala Thr
 1 5 10 15
 Glu Asn Leu Trp Leu Ser Asp Val Phe Ile Glu Glu Ser Val Asp Gln
 20 25 30
 Thr Pro Ala Gly Leu Met Ala Ser Met Ser Ile Val Lys Ala Thr Ser
 35 40 45
 Asn Thr Ile Ser Gln Cys Gly Trp Ser Ala Ser Ala Asn Trp Thr Pro
 50 55 60
 Ser Ile Ser Pro Ser Met Asp Arg Gly Glu Arg Ser Pro Ser Ala Leu
 65 70 75 80
 Ser Pro Thr Gln Val Thr Arg Ala Trp Arg Arg Met Ser Arg Ser Phe
 85 90 95
 Gln Ile His His Arg Thr Ser Phe Arg Thr Arg Arg Glu Trp Val Leu
 100 105 110
 Leu Gly Ile Gln Lys Arg Thr Ile Lys Val Thr Val Ala Thr Asn Gln
 115 120 125
 Tyr Glu Gln Ala Ile Phe His Val Ala Ile Arg Arg Arg Cys Arg Pro
 130 135 140
 Ser Pro Tyr Val Val Asn Phe Leu Val Pro Ser Gly Ile Leu Ile Ala
 145 150 155 160
 Ile Asp Ala Leu Ser Phe Tyr Leu Pro Leu Glu Ser Gly Asn Cys Ala
 165 170 175
 Pro Phe Lys Met Thr Val Leu Leu Gly Tyr Ser Val Phe Leu Leu Met
 180 185 190
 Met Asn Asp Leu Leu Pro Ala Thr Ser Thr Ser Ser His Ala Ser Leu
 195 200 205
 Val Arg Val Tyr Phe Ala Leu Cys Leu Ser Leu Met Val Gly Ser Leu
 210 215 220
 Leu Glu Thr Ile Phe Ile Thr His Leu Leu His Val Ala Thr Thr Gln
 225 230 235 240
 Pro Leu Pro Leu Pro Arg Trp Leu His Ser Leu Leu Leu His Cys Thr
 245 250 255
 Gly Gln Gly Arg Cys Cys Pro Thr Ala Pro Gln Lys Gly Asn Lys Gly
 260 265 270
 Pro Gly Leu Thr Pro Thr His Leu Pro Gly Val Lys Glu Pro Glu Val
 275 280 285
 Ser Ala Gly Gln Met Pro Gly Pro Gly Glu Ala Glu Leu Thr Gly Gly
 290 295 300
 Ser Glu Trp Thr Arg Ala Gln Arg Glu His Glu Ala Gln Lys Gln His
 305 310 315 320
 Ser Val Glu Leu Trp Val Gln Phe Ser His Ala Met Asp Ala Leu Leu
 325 330 335
 Phe Arg Leu Tyr Leu Leu Phe Met Ala Ser Ser Ile Ile Thr Val Ile
 340 345 350
 Cys Leu Trp Asn Thr

355

<210> 119
 <211> 7736
 <212> DNA
 <213> Homo sapiens

<400> 119
 gtatcatcaa atatacaaac taggcatgat caaagagcaa tgtttttcaa ttctgtctat 60
 ttgtcaaatt tcctccatct actaaagtac taaagcatct aagaatataa agtctcacag 120
 aggaaactgt tgaagaacgg ctgctctcga gagaataaac acgacagagt tgaaagacct 180
 tgagcaagat cacggaattg ccgagctaga aggtttcttt cacacctacg taaacagcat 240
 ccaggagctg tgctgtgcaa gaatctccag gctgtaaaat tagaaacact caggtttaag 300
 tcggggcgcg tggctcacgc ctgtaatccc agcactttga gaggccgagg caggcagatc 360
 atgaagtcag gagttcgaga ccagtctggc caacagggtg aaactcgtct ctactaaaaa 420
 tacaaaaaat tagccaggcg tggtagcaca tgccctctaat cacagctact tgggatgctg 480
 agacaggaaa atagcttgaa cctgggagac agagggtggca atgagccgag attgcgccac 540
 tggactccag cctgggtgat aaagcgagac tccgtctcag aaagaaaaaa gaaacactta 600
 ggtttaattc gcagttctga cacttttggg caagtaaacc aatcaagat ttgggttccg 660
 ctgtgcgtag tggctcacgc ctgtaatccc agcactttgg gaggtgagg cgggtggatt 720
 gcctgagggt aggagtcgga gaccagcctg gctaacatgg tgaagccctg tctctactaa 780
 aaatacaaaa attagctggg tgtggtggcg cagcctgta gttccagcta cttgagaggc 840
 tgaggcagga gaatcgcttg aacccgggag gcggagggtg cagtgagctg agatcatgcc 900
 accacactct agcctgggtg acagaacaag actccgtctc aaaaaaaaaa aatatatata 960
 tatatacaca cacacacacg tatatataca tatatataca cgtatatata tgtatatgtg 1020
 tatatatagt gtatatatgt atatgtgtat atatgtatat gtgtatatat gtatatatac 1080
 gtgtatatgt gtatatatgt atatatatgt gtatatgtat atatacacgt atatatgtat 1140
 atatatacgt gtatatatat gtataataat gcagccgggt gtggtgactc atgcctataa 1200
 tcccagtact ttgggaggcc aaggcgggca gatcacttga ggtcaggagt tcgagaccag 1260
 cctggccaaa tatggtgaaa ccttgtctct actaaaaata caaaaattag ccggacttag 1320
 tggcgggcac ctgtaatccc agctactcgg gaggtgagg cacaagaatt gcttgaatcg 1380
 aggaggcgga ggttgacgtg agcagagatg gcaccactgc actctagcct gggcaatata 1440
 gcgagactat ctcaaaaaaa ataaataaat aaaaataaat ttaaaaatat aataatgcat 1500
 gaagaatacc tagcacagtc cctggtacat gctaagtgcc taataaattg caactactaa 1560
 taataatcaa taaatattcc ttcgcctggt tcatggtcag cacaccttac ccagtccttc 1620
 cctttgtcag ctgactgagc cctggctgtc cctgaggat gtcctgcag cctctgaatg 1680
 gaggggtgctt gtttcctgtg ccagttcagt tctgatcaga aagggcacgc tcaactactc 1740
 aaatggagca atgaggagag tttcagaaca gagaacacag aagccaatgc atgtgggtca 1800

agaagggagg gactgggaag aataagtgct ctaaactcat ttttccctta tgctccgac 1860
 tcttgtttgt ggctgtaatt ggctgagccc agctaggagc cagagagcaa gagagcccat 1920
 tgatgtagtc cataaaggtc agcctcctgg ccggggcgcg tggtcacac ctgtaatccc 1980
 agcacttttg gaggccgagg cgagtggatc acctgaggtc aggagttgaa gaccagcctg 2040
 accaatatgg tgaaaccctg cctctactaa aaatacaaaa attaggccag gcacagtggc 2100
 tcacgcctat aatcccaaca ctttgggagg ctgaggcagg cggatcacia agtaaagaga 2160
 tcgagaccat cctggctaac atggtgaaac cccatctcta ctaaaaatac aaaaattagc 2220
 taggtgtggt ggcgtgtgcc tgtaatccca gctactcagg aggctgaggc aggaggatca 2280
 cttgaacca ggaggcagag gttgcagtga gctgagatcg tgccactgca ctctagcctg 2340
 gcgacagagc aagactctgt ctcaaaaaa taataaaata caaaattaaa aaaccagaaa 2400
 ataacaagtg ttggtgataa tgtggagaaa ttggaaccct tgtgcaactgc ttgtgaggat 2460
 gtaaaattgt gtagccactg tggaaaaaa gtatggcttt ttctcaaaat attaaaaata 2520
 gaattaccat acaaccaa atattactt ctggataaat acccgaaaaa agtgaaaacg 2580
 gggatattgt acacttatgt tcatagcaga attactcaca atagttaaaa ctcagaagca 2640
 gtctaagtgt ctattgacag atgaatggac agattaaatg tggtagtac ttacaatgga 2700
 atactatgca gccttcaaat ggaacaaaat tctaacacat gccacaatgt ggataagctg 2760
 tgaggccatt atgctaagt aaataagtca gtcacaaaaa gacaaatagt gtatttgtct 2820
 aattttatag agacagaaag tagaatagct gttgccaggg gttggagaga gggtgaaata 2880
 gggaattact gtttaacggg tgtagagttt ccatTTTgca agaagaaaag agctctggtg 2940
 atggaggggtg gtggctggac aacagtgtga atgtgttta cggcacggaa ctgtacactt 3000
 aaaaagggtta agagagtaca ttttatgtta tatattttta tcacaataaa atattgaaaa 3060
 aattattttt agcctgggca acatggcgaa acccatctc taccaaaaat acaaaaagtt 3120
 agctgggctg ggtggtgtgt gcctctaact ccagctgctc gggaggctga ggcaggaggc 3180
 aggagaatca cctgaacctg ggaggcagag gttgcagtga gccgaaatgg cgccactgca 3240
 ctccagcctg ggcgacagag caagattctg tctcaaaaaa aagaaaaaat gattttttaa 3300
 agtgttttaa aaattagagg tgcattcggc gggggtgagg agtagaaagg catgataaga 3360
 aatgctgtaa tgacattact gcaggtaaaa tctgttcttt ttggaatact tgtcaaaaca 3420
 tattcccaat ggaccttcat actgtgtttt tcatTTTcat tttccatgta ccttgaattg 3480
 ttttgatcta catattttt cagtggctta gatcaaaaat cattattgcc acatggacca 3540
 gccttggaag tgaacaagga gaggggtgtg gcatgggacc tgccttctct gagttaatca 3600
 tctagatgaa agctgctatt ccaggattca caccttcaac tggtgacatc gttcctgtgg 3660
 ctaaatatgg tatgacagac tcagtttccc ctttcctcta ctctggtgcc tctctttttt 3720
 ccactcctag gtccagcttt gcagattata ttggttaaag ctgagaatat ccataaatta 3780

gacaagttca aatagaccaa taatgaaaat acaaaacttt ctgattattc tgctggttta	3840
ggagggcaga aaatgggcac agggagaagg tggatatacac taaggccatg ggagtcaata	3900
cttatgtggc tccatcccag agaatcctga gccaaagctca agctcaagct ctgtcttgag	3960
aaaactgagg taagcaagtg ttagtgtgat ggctgccacc agagaggtgg caggagagtg	4020
aagaaatggg cgaaaaaagg aaagggaagg tgcagaagac agagcaaaac taaaactagt	4080
tccttcccc tgtttctctc atgccatggt ttctacaga cctagcacia tcaattcttt	4140
tttttttttt ttgagagagt ctactctgt cgcccaggct caagggcagt ggtgcgatct	4200
cagccactg caacctccac ctctgggtt caagcgattt tcctgcctcc tgccctagcc	4260
tcctgagtat ctgggattac agggggccac caccacaccc agctaatttt tgtattttta	4320
gtagagatgg ggtttcacca tgttagctag gctggtcctg aactcctgac cttagtgat	4380
ccccccgcct cagccttcca aagtgtggg attacagaca gaagccacca tgcccggcct	4440
tggcacaatc aatttgtgca gtggaaccca gatgaatgcg gaggcacaa gaagtccggc	4500
atggcaactg agaacctatg gctttcagat gtcttcatcg aggagtcgtg agtctcaggc	4560
caaaaaagca gaatggaac cacgtctaca gggaaggaca caatgttacc gataaggcca	4620
cacaaagact caacttagaa aagagcagag tctgaattga agagcttaca aacccccaga	4680
atatgattat aggtagaaga gagcagtcac ctgagtgagg ctggagctcg agaatgggat	4740
gacctgacag agaaagaagg ccaagtctga tggggaaacc cacagcacct acctccctgt	4800
ccttctccca cacagcatca gtgtggatca gacacctgca ggtctcatgg ctagtatgtc	4860
aatagtgaag gccacatcaa acacaataag ccaatgtggg tggtcagcat ctgcaaactg	4920
gacaccttct atttcccctt ccatggacag aggtgaacgc tctccttcag ccctttcacc	4980
tacacaggta agtggggctc actaaagtag actggttaga ggcagagaaa gggctttgag	5040
tgagaagagg acagaaagct gggaaacagt agggaatctt gctgaaaagg gcctggaagc	5100
taagcagtga gggatccaac agtctgggca agggacttgg gcgcatttgg ggaggctgag	5160
tcttctgggc ctgctttgca gtggagaaca cgagcccggg catggagaag gatgtccagg	5220
agctttcaaa tacatcacag aacctcattc agaacaagga gggagtgggt actgctgggt	5280
atccaaaaaa gaacaataaa ggtgaccgtg gccactaacc agtatgaaca agccatcttc	5340
catgtgagct caggggcca gacaagggtt caccatgttg gccaggctgg tcttgaactc	5400
ctggcttcag gtgatccgcc cgctcggcc tcccaaagt ctgggattac gggcgtgaac	5460
cacgaagccc ggcctttgtc actctttttt tttttttaa tttgagatag agttttgttc	5520
ttgtcgctca ggctggagt caatgacgtg atctcagctc actgcaactt ccacctcctg	5580
ggttcaagtg atttctctgc ttcagcctcc tgagtagctg ggattacaag ggcccgccac	5640
catgcccggc taatttttgt atttttagta gagatggggt ttaccacagt tcaccaggcc	5700
ggtctcaaag tcctgaactc aggtatctgc ctgcctcggc ctcccaaagt tctgggatta	5760
caggtatgag ccaccgtgcc cagccttttg tcaacttttt cactgataaa ccttcagtac	5820

taaaacaata cctggtactc agtaaatagt tactaaataa agcatccctt gaggaagaaa 5880
 caaaggctct atgccagtga ttcattggtga gggtagagccc cgccttcccc aatggctgtc 5940
 agaacttttt ggaaggcagg aatttttgtt tattttttaa aagatatggt agaaagagtt 6000
 aggaacact gccttaggga tatgatgatt ccaaatacctg ataaccccaa aatatctgat 6060
 actgtctgct tccctccca ctggtctcaa atgttccct gcaaagtcac tagagattag 6120
 accttgacga gaaaagcaat tagaaatgaa aagataaac acacgcgaca cctaagtcgg 6180
 tggttccaca gtcttgctaa gagcacgtcg gttagaataa aaatttaagt ggagaaagtt 6240
 gacaccttgg gccaaaagga atgagatata ttccagaggt aagcagcatg ggagactcta 6300
 accttgtag acgccttgg atgaaaagac cggatgctga aaggagcggg aggtaatat 6360
 tccttactag acagtttggc ctgggacaaa tccagttct tactcttacc tgtcttgaca 6420
 gcctcccagc ctacttctca cttgcccctc cttctctcc ccaccaggtg gccatcaggc 6480
 gcaggtgcag gccagcccc tacgtggtaa actttctggt gccagtggtg attctgattg 6540
 ccacgatgc cctcagtttc tacctgccac tggaaagtgg gaattgtgcc ccattcaaga 6600
 tgactgttct gctgggtac agcgtcttcc tgctcatgat gaatgacttg ctcccagcca 6660
 ctgacacttc atcacatgct tcactagtag gtctcatcc atcaagagac caaaagcgag 6720
 gtgtgtgttg gatggggaga gggatgggca gaaccaggcg aagtgaagag ggatcctgga 6780
 aaaagatcct ctgggaaaga aacaagaaat tctaggtggc gcctctggcc ctcatgcaga 6840
 ccccttgcc tgcaggtgtc tacttcgccc tgtgcctgtc cctgatgggtg ggcagcctgc 6900
 tggagaccat cttcatcacc cacctgctgc acgtggccac caccagccc ctacctctgc 6960
 ctcggtggct ccactccctg ctgctgcact gcaccggcca agggagatgc tgtccactg 7020
 cgcccagaa gggaaataag gggccgggtc tccccccac ccactgccc ggtgaggga 7080
 gtcatacttc ctcttcccc acctccactt ctctgctcct gcctccttcc ctgtctccct 7140
 ccctccacag gtgacatttg cagcccatgg ctgagtctct gtctttctgt aggtgtgaag 7200
 gagccagagg tatcagcagg gcagatgcc ggcctgggg aggcagagct gacagggggc 7260
 tcagaatgga caagggccca gcgggaacac gaggccaga agcagcactc ggtggagctg 7320
 tgggtgcagt tcagccacgc gatggacgcc ctgctcttcc gcctctacct gctcttcag 7380
 gcctcctcca tcatcacct catatgctc tggaaacct aggcaggtgc tcacctgcaa 7440
 acttcagtct ggacttcttt ttgccagaga actccagaaa ccagtcaggc tctcagtcag 7500
 ccttgtaggc ctgtcaacc cctcattttt aaccagtc tctgtgtagt ttcagaccag 7560
 acctgaatag tctcctatgc cctccaaaag tcgggtcctt gctcctgcat gccatcagcc 7620
 cactcagcc ctcccatacc tccctggctc ctgaggttc aggttcctag ggtacgtcct 7680
 tgattaaatc accccaatat gccctttgc agaaagtatt ggcttttccc tgaatt 7736

<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<223> Primer

<400> 120
gctcatgata gtgacttgct cc

22

<210> 121
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<223> Primer

<400> 121
cagcgggcag aagaggtata g

21

<210> 122
<211> 1000
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<223> Primer/Probe

<400> 122
ttaagatttg cgctttgcc aactgtacacc caacctcggt ttattgtcga acctcccgt 60
tgtgccgcc aactgtacata gatcccggtc agtccgtcac attctgccaa ttgagtatcc 120
tcgaagtctt attccacgtg ctcaaagcaa gggatcgtga cagtataac cgcctcgtgc 180
agatccaaat tctcgattaa cactcaagta ctgattttta tcatcaggta actaaaaact 240
cacaatttga agcaccagcg agaactcgtt tattctctag cttcgcaaca tcgacagttg 300
taatggcata acttcggcat tcatagtggc tgagttaggc ggactaagcg aaaaactggc 360
cgtagatct tcctcaccat gattttacaa gaaaggcgaa ctcaatttga cggcggtaaa 420
gttagatggc tacgcgcgac aagtctccgt atcgtcatga aattagcgaa gaggtaattg 480
caaagcttgg ctacgaatac aggagcgcgc tgtgattaca gtagggtag gatagcgaaa 540
acgttcaacg tggatagact cttatcggca cagatcata tgcttccaag gttcccaagg 600
cgaattacta ggggtgcacag agctacgagt acgctgtccg gcttgattcg ctctacatc 660
cactgttcaa aaagctccga taccgacgat cactctcgat ctctgtgtgg gacgcactta 720
ttgtggaatc agtcaaccag tgaagcattc acatgtacgt ggtacggcac gccgtggtat 780
gttagcggtc cctgcgccgc aagtaaacc ttcagctgtc acctcctata gtaacacgct 840
cgcatgcaga gcctagcacc ttagctctga gttgcctgcc ggaaggatat attctgtatg 900

tgattaaagc gaagtcaaag taaaccccc acatgcagac ctgggtaaat tctcactcag 960
 ttgaaacgta ggggccaata cgtgtgtcct tgatactact 1000

<210> 123
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 123
 caatgtgggt ggtcagcatc t 21

<210> 124
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 124
 ggacagaggt gaacgctctc c 21

<210> 125
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> misc_feature
 <223> Primer

<400> 125
 caaactggac accttctatt tccccttcca 30